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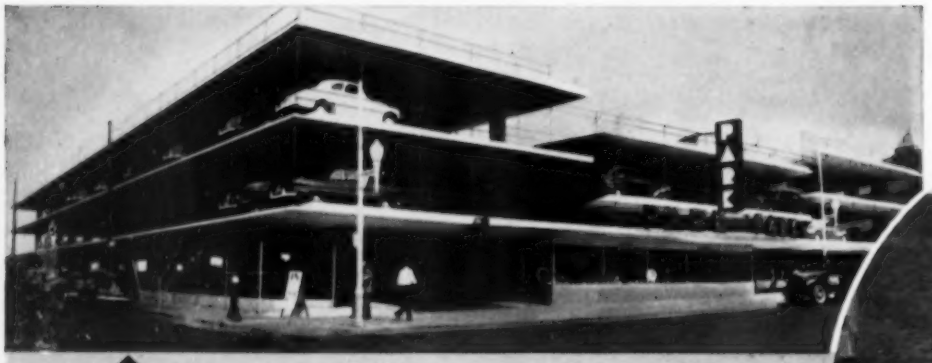
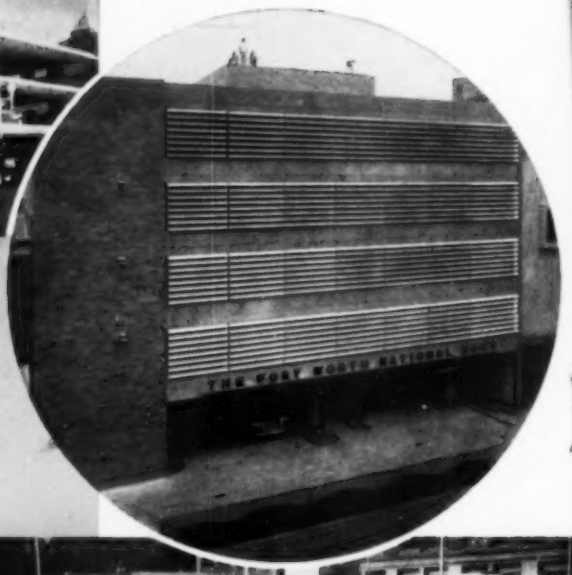


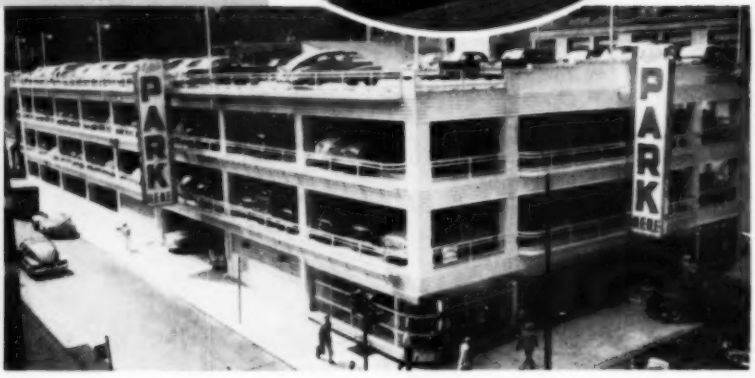
Miami Parking Garage, Miami, Florida. Archt.—Robert Law Weed; Contr.—Gust K. Newberg—both of Miami, Fla. Pozzolith Ready-Mixed Concrete supplied by Maule Industries, Miami Beach, Fla.



Fort Worth National Bank Garage, Fort Worth, Texas. Archt.—Preston M. Geren; Contr.—Thos. S. Byrne, Inc.; Pozzolith Ready-Mixed Concrete supplied by Fort Worth Sand & Gravel Co.—all of Fort Worth, Tex.

Blaise Parking Garage, New Orleans, La. Archt.—Diboll-Kessels & Assoc.; Contr.—Gervais F. Favrot Co.; Pozzolith Ready-Mixed Concrete supplied by Jahncke Service, Inc.—all of New Orleans, La.

Eglin's Garage, Philadelphia, Pa. Archt.—W. F. Sillman; Engr.—J. E. Good; Contr.—John A. Robbins Co., Inc., Pozzolith Ready-Mixed Concrete supplied by Warner Co.—all of Philadelphia, Pa.



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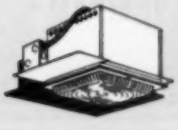

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newsletter pa

April 1954

architects honored: **Eero Saarinen became a life member of the National Institute of Arts and Letters when he and four other Americans were added to Institute's roster in honor of their "notable achievements in art, music, and literature" . . . . Gold Medal (1954) of Royal Institute of British Architects went to Australian Architect, Arthur George Stephenson . . . . Architectural League of New York awarded its Gold Medal in Architecture to Skidmore, Owings & Merrill (Lever House). Other architectural winners: Silver Medals—Harrison & Abramovitz (Corning Glass Company Building) and Perkins & Will (Heathcote School); Honorable Mentions—Henry Hill (William Foster House) and Hellmuth, Yamasaki & Leinweber (St. Louis Housing Project).**

appointments within the field: **Harold D. Hauf has taken over as Director of AIA Department of Public and Professional Relations . . . . George Hutchinson, Jr., E. Todd Wheeler, Leon Hyzen, and G. Robert Johnson make up subcommittee of AIA Chicago Chapter which will assist Chicago Plan Commission in selection of site for civic center . . . . Edmund R. Purves, AIA Executive Director, has agreed to serve on FHA's advisory committee on national housing established by Commissioner Guy T. O. Hollyday last May.**

news from the universities: **Both Pratt Institute, Brooklyn, N. Y., and the University of Virginia have announced establishment of separate Schools of Architecture, beginning this July and September, respectively. . . . Department of Architecture at Harvard will award two $4000 Arthur W. Wheelwright Fellowships this year for foreign travel and study to graduates of its School of Design . . . . New York University has announced plan under its sponsorship for establishment of National Arts Center in New York. Preliminary estimate of $8 millions has been set for cost of site (mid-Manhattan), building, and equipment.**

exhibition feature: **Techbuilt "Excursion House," designed by Carl Koch & Associates, will be important highlight of "Building Your Home—1954," to be sponsored this spring by Architectural League of New York. Lewis Adams, incoming League president, has announced that the $14,000 partially-prefabricated house will be erected, furnished, and landscaped in New York's 71st Regiment Armory, where exhibition will be held. Architects, builders, and public invited.**

recent elections: **Concurrent with naming of new members, National Institute of Arts and Letters elected as a Vice-President James Kellum Smith of McKim, Mead & White (New York); Smith succeeds Ralph Walker . . . . Texas Builder R. G. Hughes became National Association of Home Builders' new President at NAHB 10th Annual Convention-Exposition (attended by record crowd of 20,000 persons). Hughes, First Vice-President last year, heads Hughes Development Co., Inc., in Pampa, Tex.**

government awards: **April 15 is deadline for application for 1955-56 lecturing or research awards (post-doctorate level) under Fulbright Act in Australia, Burma, Ceylon, India, New Zealand, Philippines, Thailand, and Union of South Africa. Forms obtainable from Conference Bd. of Assoc. Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D. C.**

Turn page for WASHINGTON PERSPECTIVE

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newsletter

Frederick Gutheim Washington Perspective

The best opinion here still holds that the economy is sound. March figures on economic activity are believed the clue to forecasting whether the winter slump will be prolonged into a longer recession. Building in all parts of the country is holding up relatively well, although prices are still dropping slowly. Depression talk is still highly colored by politics. This shows up in the jockeying to call the slump by various names, implying everything from its seriousness and duration to who's responsible for it. One quip worth passing along: a recession is when your neighbor is out of work; a depression is when you lose your job.

Not content with recommending outright repeal of the Taft-Hartley law, the annual convention of state labor officials issued here another unwelcome declaration when it urged Congress to appropriate funds for a stand-by public works program to counteract unemployment. This looks like a gone goose. The present view of the President's economic advisers is that such a measure is too cumbersome to afford prompt relief, although they do not dismiss it as a long-range measure. Unemployment insurance, and past experience with the delays involved in putting men to work, have reoriented thinking on the right way to fight a depression. As far as building is concerned, current interest is centered on remodeling, modernization, and accelerating maintenance programs—rather than on any new work. The depreciation recommendations in the President's message to Congress are the measure of such thinking. Public building is now in a fantastic situation. It can't be done in a war or defense period, because of the shortage of critical materials: in a boom it should be deferred, in order not to add inflationary pressures. It's no good in a depression, because it won't put men to work fast enough: and any other time it's opposed, on grounds of government economy and budget balancing. This might be considered by the AIA at Boston among "Forces That Shape Architecture" or—to borrow a terminal proposition from the Columbia Bicentennial theme—"The Absence Thereof."

The removal of the first of Washington's 55 temporary government office buildings (some of which go back to World War I) has been roundly applauded. This structure was erected in 1942 to house a White House guard force. Despite stern warnings by GSA Administrator, Edmund F. Mansure, that none of the other tempo's are scheduled for razing, hope has been aroused that the turndown in Federal employment in Washington may result in the elimination of these eyesores and firetraps, in which some 40,000 government employes work. Those who have wrestled with the elimination of such structures from college campuses, medical centers, and other favored haunts may relish a local editorial comment. It was Franklin D. Roosevelt, when Assistant Secretary of the Navy, the "Washington Post" reminds us, who told President Wilson that the "temporary" Navy building (which still flanks the Lincoln Memorial's reflecting pool) should be erected in the Ellipse immediately adjacent to the White House. His somewhat Machiavellian argument was, only an eyesore within a stone's throw of the executive mansion would be removed short of the Day of Judgment.

The appointment of Leland W. King as an architectural co-ordinator of the Spanish bases program is an excellent step. It allows a veteran public administrator to back up the potentially good team of private architects commissioned a few months ago. As for King's former work in the State Department overseas building program, the appointment of a strongly progressive architectural advisory board argues that the gloomy fate which appeared in store for it a few months ago has been averted. Pietro Belluschi, Henry R. Shepley, and Ralph T. Walker can hardly be described as sympathetic to the rather severe design work of Rapson and van der Muelen, or the Skidmore or Harrison offices, but whatever they sponsor ought to be first rate. But the danger of an overcentralized program, described here last November, is still present.

Plans for defending our cities against thermonuclear attack have been reversed. Defense officials have coined the antiseptic term "tactical dispersal"—implying that urban populations in 193 target areas will execute a colossal sort of school fire drill and leave the cities, to return once the danger of attack is past. The plan is made feasible by new warning devices greatly increasing the time between Warning Yellow (attack probable) and Warning Red (attack imminent). "FCDA Advisory Bulletin 158" contemplates that the survey of shelter possibilities of existing buildings will be completed. It also outlines a number of new defense activities, including the preparation of dispersal areas, transportation planning, and a reorganized shelter program, that will be of interest to architects. The ramifications of the program are extensive, and will even influence, for example, such details as the design of school-bus loading facilities. All this, of course, implies that we are defending against hit-and-run attackers, not against the sustained onslaught of guided missiles that characterized the closing year of the last war. The most advanced types of Soviet planes make this a plausible current assumption. But how long will it be valid?

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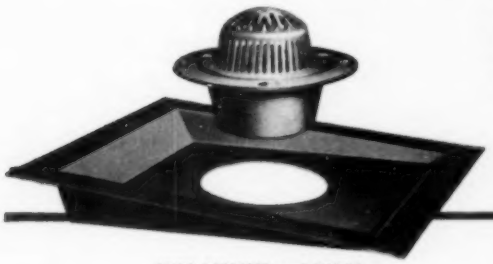

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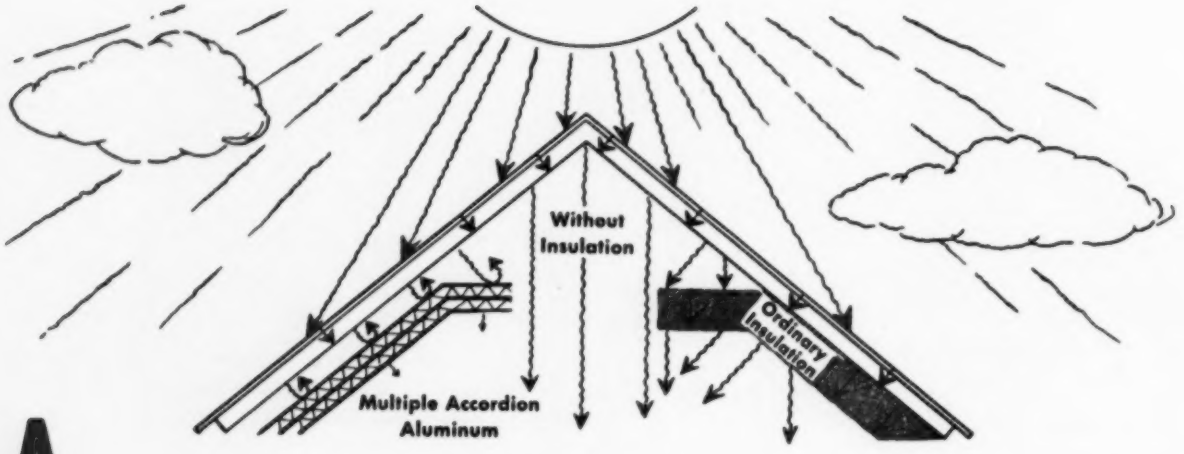

An Empty Roof Space Would Be The Best Insulation Against Summer Sun, *Were It Not For Radiation*

But substantially the only summer heat flow through empty roof space is RADIATION. There is slight CONDUCTION. Heat flow by CONDUCTION through any building space is about 7% of the total. CONVECTION is not a problem—there is no CONVECTION downward.

Ordinary insulation may retard heat for a time, but stores a large amount of heat as compared to empty space. More dense, it is a much better conductor of heat than just air and so more heat passes through it by conduction. Its surfaces have a heat ray absorptivity and emissivity of over 90% and radiate heat into the building through the day, and sometimes into the night.

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The National Bureau of Standards Booklet BMS52, "Effect of Ceiling Insulation Upon Summer Comfort" lists on Page 10 the relative effectiveness of the insulations tested in protecting ceilings against summer heat. First in effectiveness was two layers of aluminum foil (both sides of each layer reflecting). Second was full thick (3¾-inch) ordinary insulation. (Use coupon to get the booklet FREE!)

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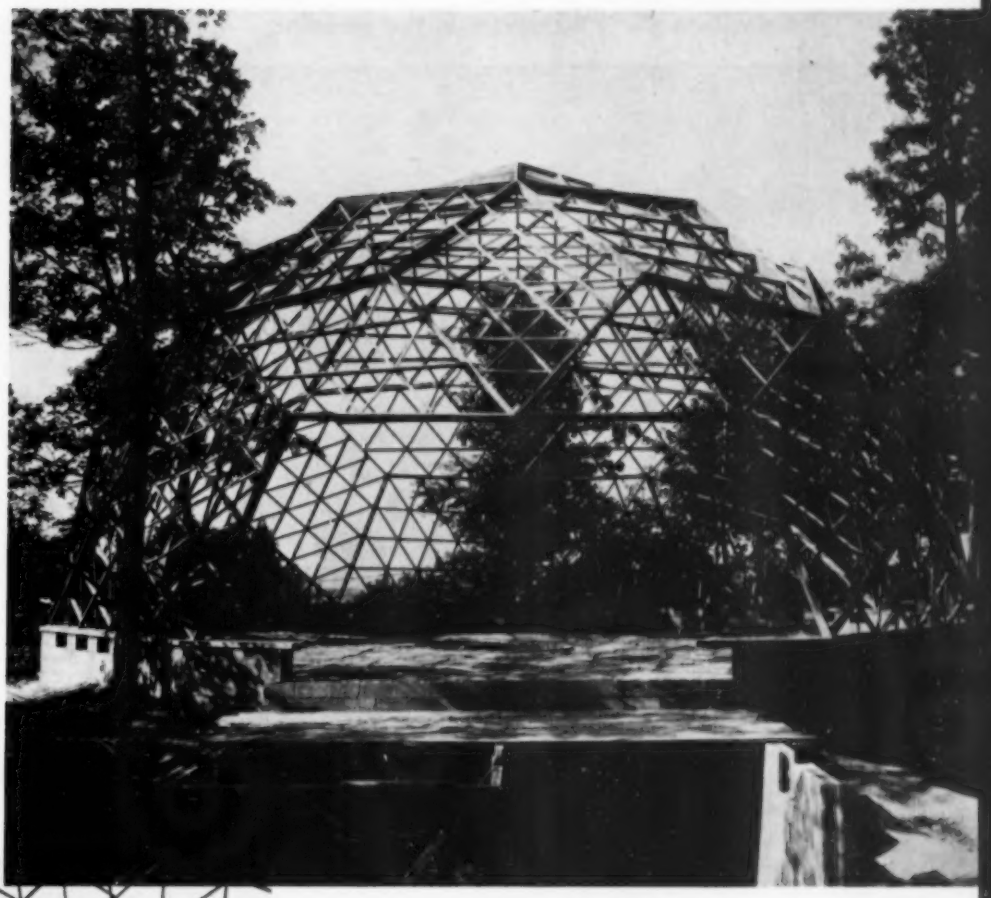


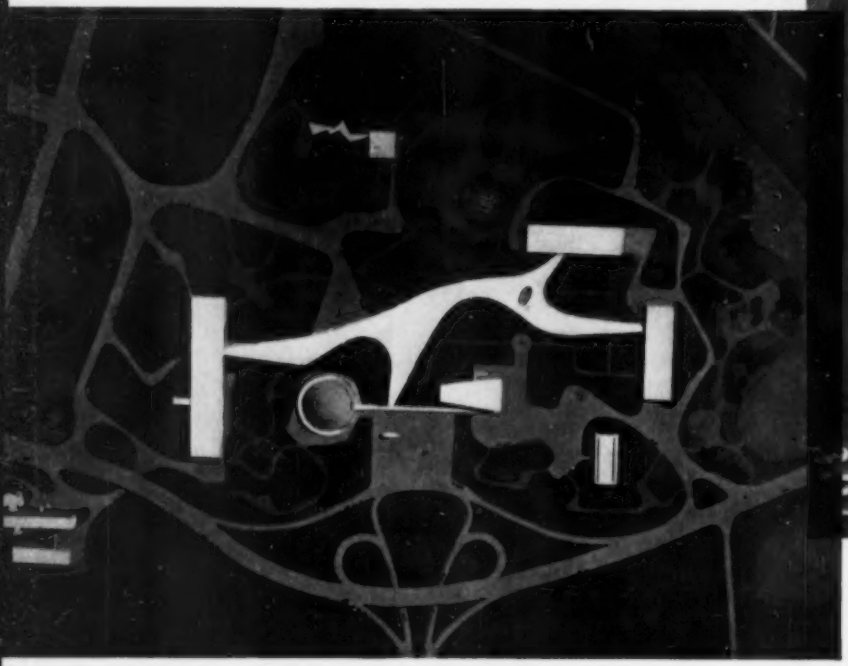
geodesic dome for motel dining room

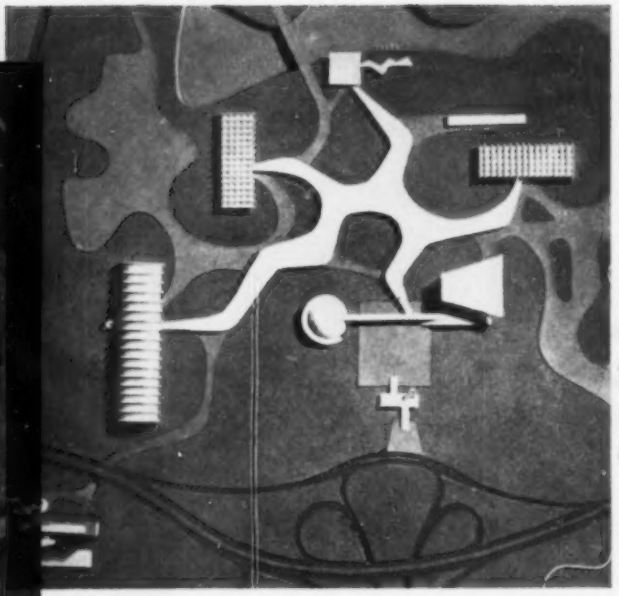
First structural element of the new motel at Woods Hole, Massachusetts, to arise for attraction of visitors to the port and travelers embarking there for Martha's Vineyard and Nantucket, is the adroitly articulated wood frame of the geodesic dome (*above*) designed by R. Buckminster Fuller and constructed by a student team under direction of that persuasive innovator. Architect of the motel is E. Gunnar Peterson, Falmouth.

Local news reporters and sightseers gathered to "watch the show" while the frame of the dome was being built by the student helpers and this advance unit of the motel is already well known. The dome, which is 27 feet high, will be covered with transparent plastic and will serve as the dining room of the motel, which is expected to be in operation for the summer season. Fuller is confident that the 3½-ton frame is strong enough to withstand hurricanes and winter snows. As the inventor of the geodesic dome, Fuller has been active lately building several, notably the riveted aluminum dome, with translucent plastic skin, that was built to protect the center of the Ford Rotunda near the famed River Rouge plant in Michigan, described in LIFE in August, 1953. A more daring development of this structural system is the discontinuous compression sphere built by a team of Princeton students under direction of Fuller, later last year.

Photos: Falmouth Enterprise

exposition parti modified in the building

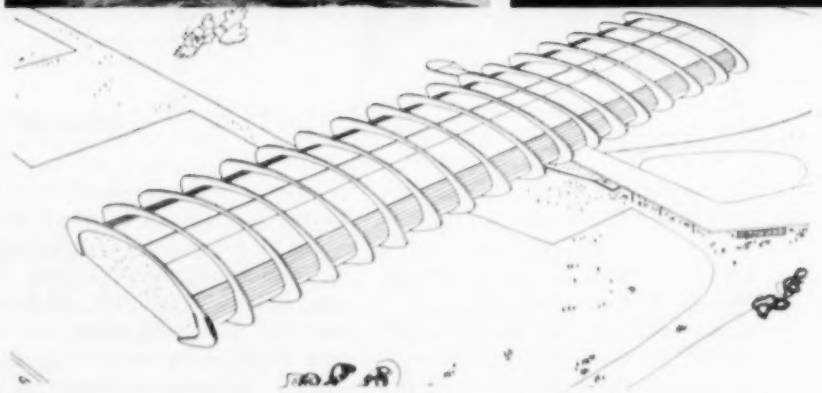


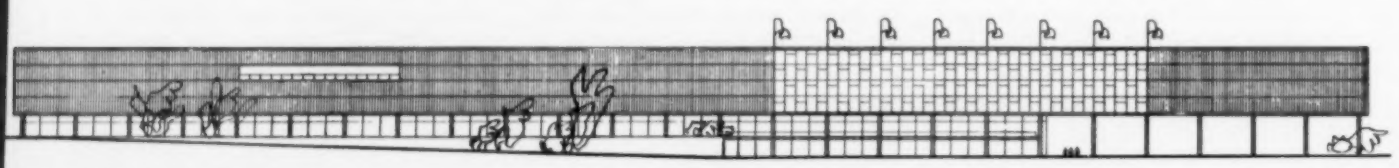


First design (above) *for the park and exhibition buildings of the Fourth Centennial of São Paulo, Brazil, has undergone some modifications* (left).

The original parti and building designs for the Fourth Centennial of São Paulo, Brazil (PROGRESS PREVIEW in April 1953 P/A), had to be simplified before conservative opposition would permit the project to proceed, we learn from Oscar Niemeyer, architect of the flat-roofed Industrial Building (*right*) now being rushed to completion in time for the opening of the exposition in July. He complains that his design for the building (*below right*) has been vulgarized by the forced changes in its structural form and expression, as well as by shrinking of the initial concept for the grounds. The site development, to remain as a public park, will accordingly be less interesting, he points out. The original designs won international acclaim, but were not accepted by a local group.

From the viewpoint of P/A Editors, this again emphasizes the value of presenting to our design audience projects in the initial stages, before committees or clients have shorn them of interesting features and daring structural innovations.





The Carnegie Endowment International Center, New York / Harrison & Abramovitz, architects
no. 95 chair / no. 96 sofa / no. 402 table, foreground

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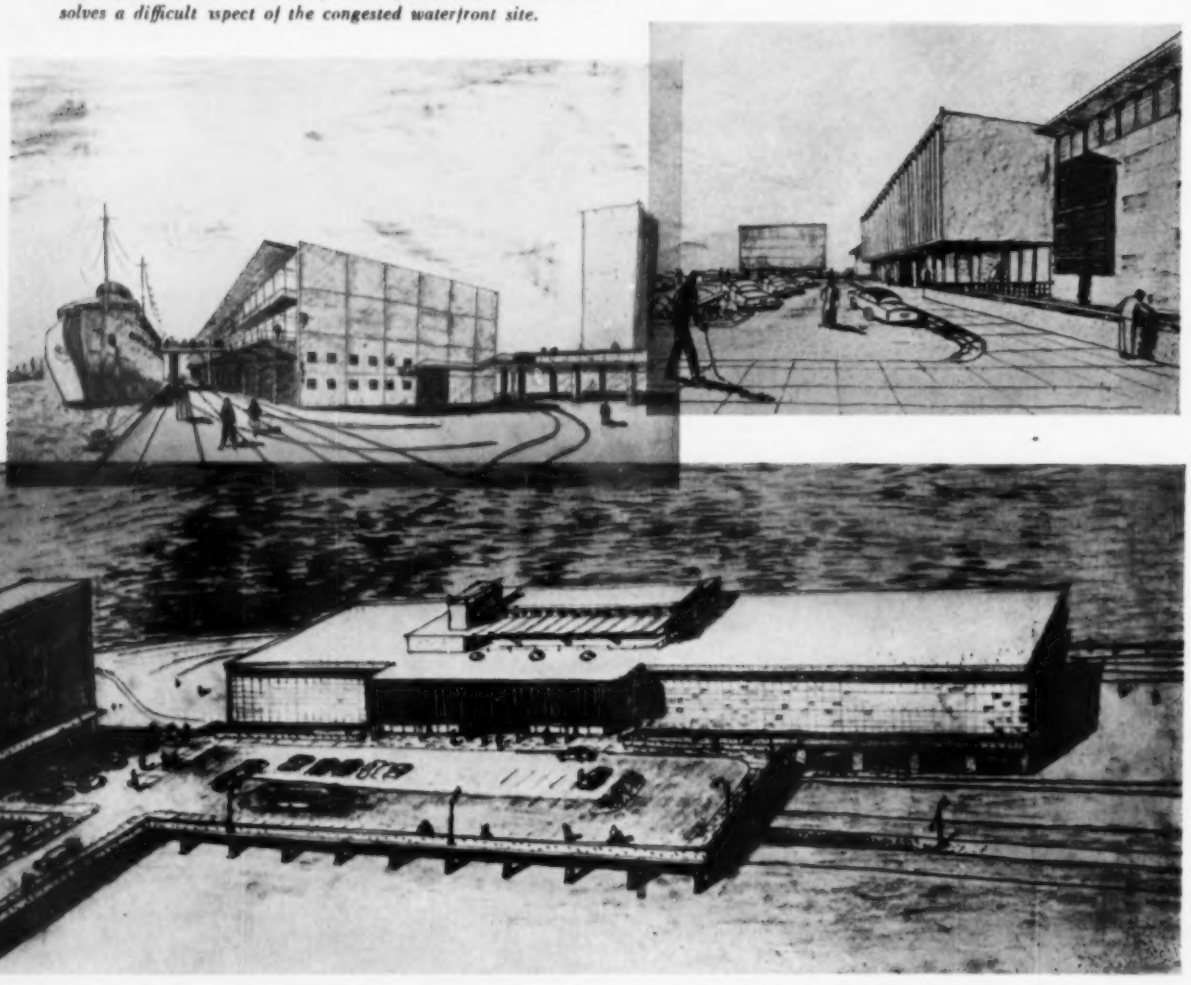
administration building. *First unit of a multi-million-dollar expansion program for City of Hope National Medical Center, Duarte, California, has been designed* (above) *by Pereira & Luckman, Los Angeles architects-engineers, for construction this year. Centralization of facilities is the keynote.*

passenger/freight terminal. *Expansion of Haifa port facilities under supervision of the Israeli Ministry of Transportation & Communication will start with this passenger and freight terminal adjacent to the Haifa railway station, designed by Knappen, Tippets, Abbott, McCarthy, New York architects-engineers. The firm also is designing additional transit sheds near this steel, concrete, and glass structure on the quays. The motor-traffic plaza over the tracks of the adjacent railroad terminal solves a difficult aspect of the congested waterfront site.*



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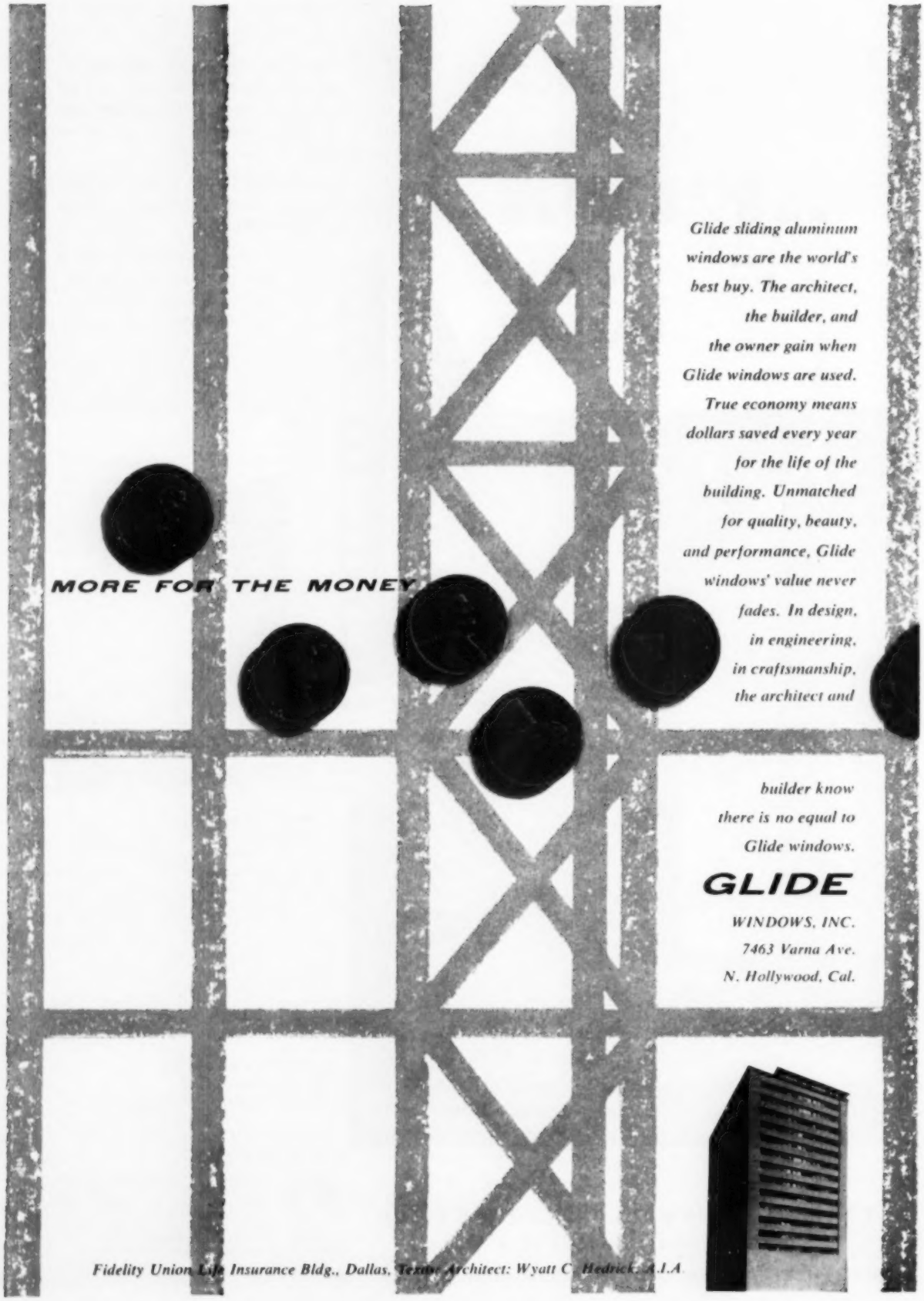

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1954 design awards prized by winners

high criteria

Dear Editor: We have just received our copy of the January issue, and want to send our congratulations. You and your Jury have done a wonderful work to collect such high quality all in the pages of one magazine.

What makes this high quality more satisfying to us here at the Museum is the realization that architectural judgment tends more and more to agree. The criteria that you and your Jury have displayed and which the architects involved have so well met, are the same that we at the Museum would like to apply in our own exhibitions.

It is going to be a great year for architecture. PHILIP C. JOHNSON, Director
Department of Architecture and Design
The Museum of Modern Art
New York, N. Y.

very fine issue

Dear Editor: January 1954 P/A has reached our office, and we are very pleased with the presentation of the Josephine Traylor Brooking Memorial Nurses' Home. You and the entire staff of PROGRESSIVE ARCHITECTURE should be congratulated on a very fine issue.

ARTHUR FEHR
Austin, Tex.

WHEN YOU CHANGE YOUR ADDRESS

Please report both new and old addresses directly to P/A five weeks before you move. The Post Office will not forward your magazine to the new address unless you pay extra postage. Avoid this needless expense by notifying us five weeks in advance.

PROGRESSIVE ARCHITECTURE
Circulation Department
330 W. 42 St., New York 36, N. Y.

wall of honor

Dear Editor: We were very pleased with the entire presentation of the award projects. Of course, we were especially proud to have our Center Medical Building included. The Award Citation has just arrived and it will go up on our "wall of honor" alongside the other awards already received by our firm. Many thanks to all of you at P/A. ALBERT S. GOLEMON
Golemon & Rolfe
Houston, Tex.

architecture/engineering

Dear Editor: The Award Citation arrived yesterday and I appreciate receiving it, although most of the credit should go to Hugh Stubbins.

May I say, as a subscriber to your magazine, that I find it excellent in coordinating architectural and engineering design. LEROY M. HERSUM
Consulting Engineer
Boston, Mass.

favorable publicity

Dear Editor: I wish to take this opportunity to express my sincere gratitude for the honor you have bestowed upon me. Being one of the winners of the P/A Design Awards Program 1954 has brought much favorable publicity which can only be attributed to your fine presentation in January PROGRESSIVE ARCHITECTURE.

W. C. MUCHOW
Denver, Colo.

tipping the scales

Dear Editor: Just a line to congratulate you on the success of the dinner at Boston and your "Awards Program." It went off very well indeed, and I personally enjoyed the dinner very much. I met many friends of long standing but rarely seen, and I guess everybody else got a great thrill out of The Back Bay Center. I hope some way will be found to make it go ahead. I am sure your effort has tipped the scales a little further in the right direction.

WALTER H. KILHAM
New York, N. Y.

knockout!

Dear Editor: Your January P/A is a knockout! MARSHALL SHAFFER
Department of Health,
Education, and Welfare
Washington, D. C.

office practice

Dear Mr. Spiegel: I have read your article in February 1954 P/A, "What is Overhead?" with considerable interest. Our firm has kept records in strict accordance with the A.I.A. Standardized System of Accounting ever since its publication, and we find that our ratio of Indirect Expense to Direct Salary Expense averages well over 100 percent.

We have discussed this figure with several other firms and with our accountant, who does work for quite a few architectural offices in Washington and Baltimore, and find that the experience in many offices is comparable to ours—when books are kept on the same basis.

The figures quoted in your article are very different, and it may be that this difference is due to a difference in accounting method or in the manner of calculating the ratio.

Discussion of ratios has little meaning unless based on comparable data, and I would be very interested to know just

(Continued on page 14)

p/a views

(Continued from page 15)

what items are included and what method of calculation is used in arriving at the figures quoted in your article.

BERLA & ABEL
Washington, D. C.

•

Dear Mr. Abel: *Thank you very much for your letter of February 17th pertaining to the article on "overhead" in the February issue of P/A. I appreciate the constructive criticism contained therein. Of course, I had not intended to talk in terms of percentage figures for overhead unless I could back them up with detailed computations. These detailed computations appeared in the March issue of* PROGRESSIVE ARCHITECTURE. *(The length of the article made its publication in two parts necessary.)*

However, I am perturbed to hear about the relatively high percentage of overhead your office and others encounter. I would like to explain briefly how we arrive at our overhead computations:

In budgeting of jobs we make allowances for all direct expenses in connection with them. This means that, in addition to estimated drafting expenses, we estimate probable direct costs for blueprinting, travel, fees, etc. As expenses are incurred, which are applicable to jobs, they are entered as a job expense. This leaves, of course, all such unattributable items as secretarial salaries, indirect drafting salaries, rent, stationery and supplies, local telephone, miscellaneous taxes, accounting, legal fees, books and subscriptions, insurance, etc. as "overhead" items. At the end of the year the total expenditures of the firm are audited and the "overhead" items are applied against the Direct Drafting Salaries, and this gives the percentage figure used.

Please note that partners' drawings are not included as overhead items. I am not certain whether your office does include them. They would of course increase the percentage of overhead considerably. However, partners' drawing accounts, representing an intermittent distribution of profits, should not enter overhead computation in any case, as they only effect each partner's capital standing in the firm.

I trust the above will somewhat clarify the points raised in your letter.

Again many thanks for your comments. You will no doubt have further comments on some of my other articles which are scheduled to appear in PROGRESSIVE ARCHITECTURE. *I would appreciate your giving me your critique of them, should they be unclear, or give misleading impressions.* SIEGMUND SPIEGEL

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real logic and sense

Dear Editor: I would say that the McGuinness article on year-round air conditioning, in February 1954 P/A, is by and large the best nontechnical introduction to a complicated subject that I have ever read, and I've read lots. There was application of real logic and sense of uni-

(Continued on page 20)

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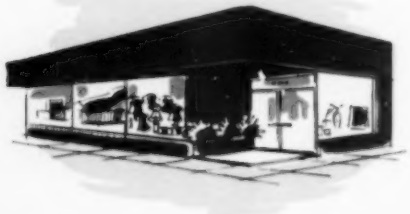

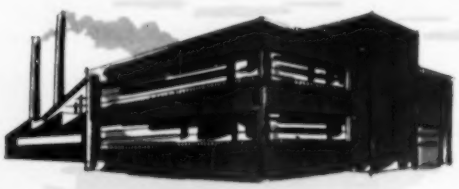

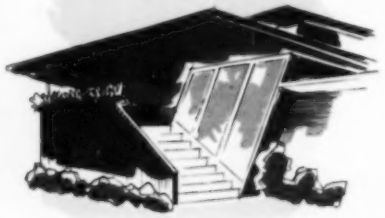

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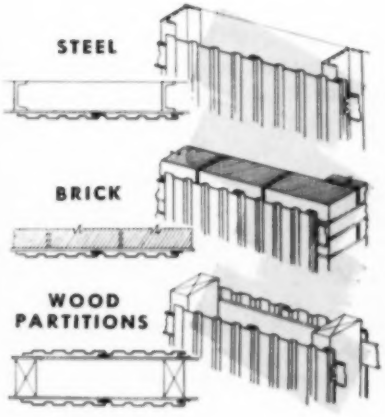

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p/a views

(Continued from page 16)

fying to the organization of the material, and the use of a writing style unfortunately rare in the architectural magazines: a style without pretensions, without technical gobbledygook. Congratulations!

My only objection (and it is a pretty major one, I suppose) is to the drastic underemphasis on the need for thorough insulation and double glazing, and to the absence of useful information on how to figure heat gain, with and without adequate thermal protection of residences. I know the subject is inordinately complex, but it seems to me that a gentleman of Professor McGuinness's talents could have made even that difficult subject comprehensible. Perhaps we can have a sequel* dealing with that aspect?

GROFF CONKLIN

* For "sequel," see "Heating Design for Future Cooling" by Robert H. Emerick, in November 1953 P/A, p. 104. Ed.

attractive treatment

Dear Editor: Our compliments to you and the others on the staff for achieving an interesting and attractive treatment, within the confines of a single page, on the Pereira & Luckman "Marineland of the Pacific" project (PROGRESS PREVIEW *in February 1954 P/A*).

DAVID U. SNYDER
Executive Research, Inc.
New York and Los Angeles

gratitude and appreciation

Dear Editor: The members of the San Antonio Conservation Society wish to express their gratitude and appreciation for the fine editorial you wrote in December 1953 P/A concerning your recent visit to Texas. Mrs. O'Neil Ford shared it with us, at our general membership meeting on January 28, and it was enjoyed by all.

ELEANOR G. BENNETT
San Antonio Conservation Society
San Antonio, Tex.

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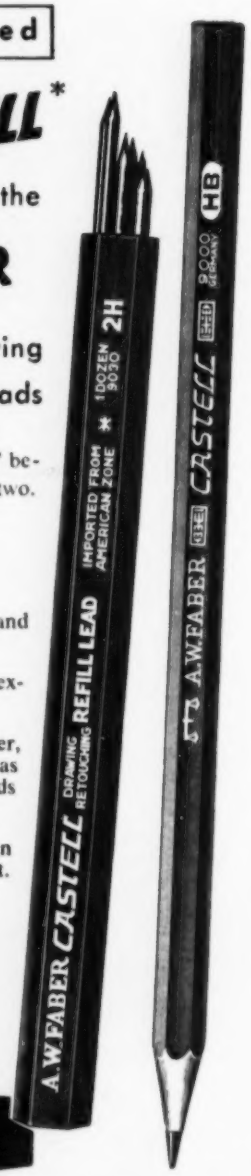

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notices

meeting

THE WESTERN MOUNTAIN DISTRICT 3RD ANNUAL CONFERENCE of the AIA will be held in Santa Fe, N. Mex., April 22, 23, and 24. Address inquiries to: Max Flatow, 1840 Lomas Blvd., N.E., Albuquerque, N. Mex.

appointments

HAROLD D. HAUF is now Director of Public and Professional Relations of The American Institute of Architects.

Four new members elected to the AMERICAN ACADEMY OF ARTS AND LETTERS are ARTHUR BROWN, JR., California Architect; E. E. Cummings, New York poet; John Hersey, Connecticut novelist; and Roger Sessions, New Jersey composer.

MELTON FERRIS, San Francisco newspaperman, has been appointed Executive Director of the California Council of Architects.

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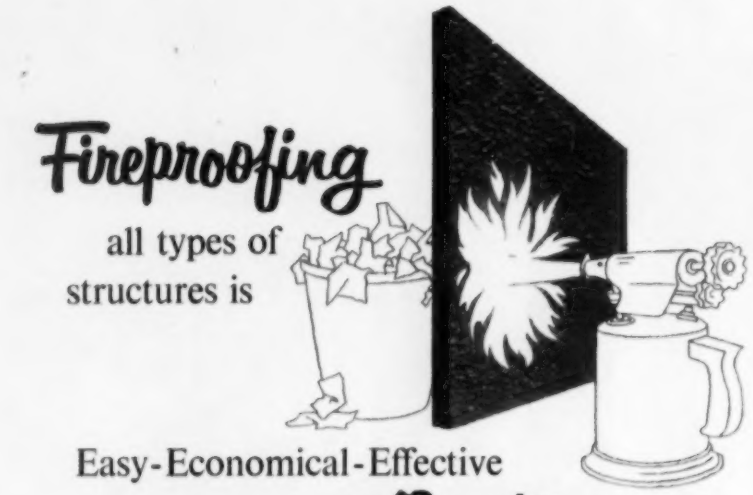
THEODORE W. DOMINICK, Architect, 1308 18 St., N.W., Washington 6, D.C.

ASH & HARRISON, Architects, 2903 E. Douglas, Wichita, Kans.

THE PEPPER ASSOCIATES, Architects, 1616 Locust St., Philadelphia 3, Pa.



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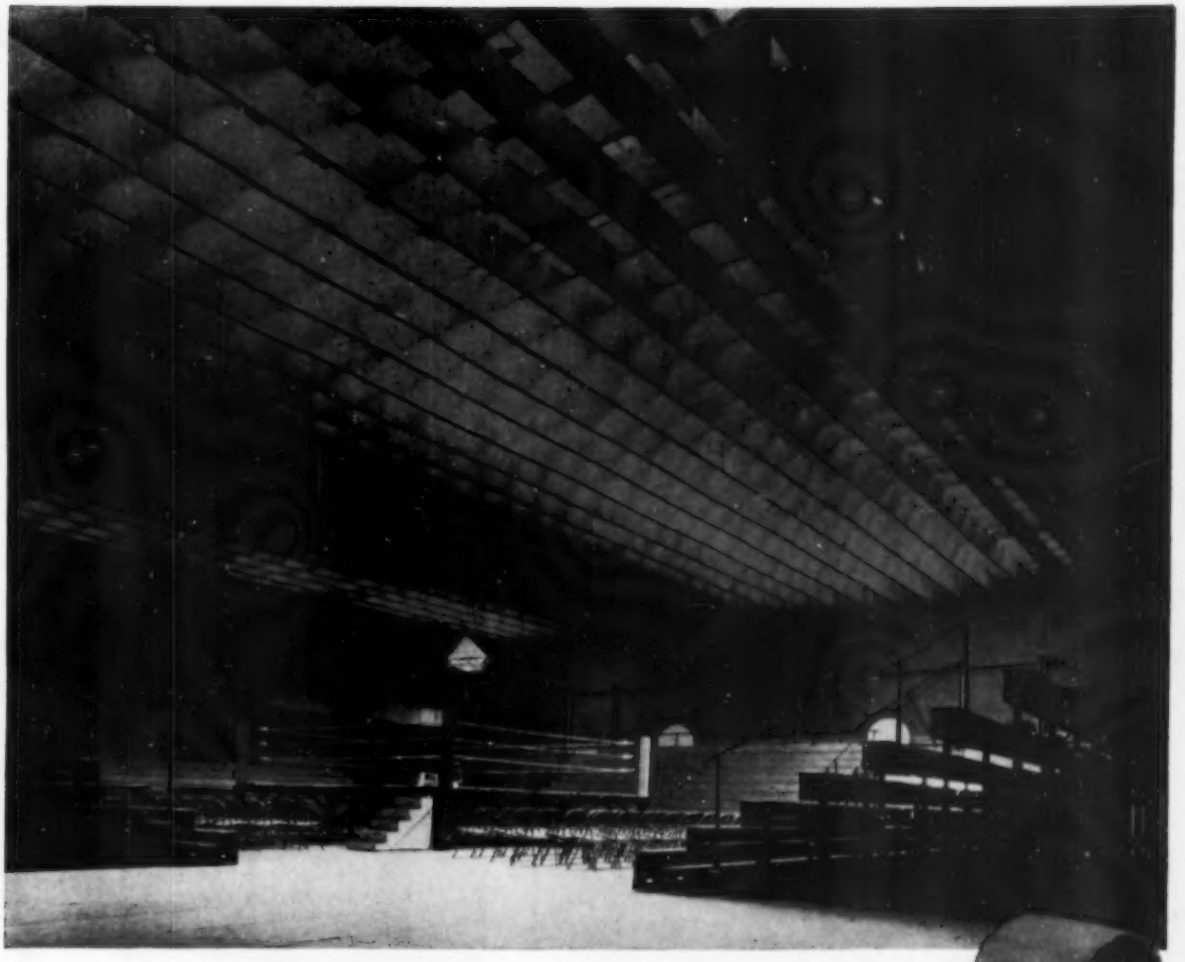
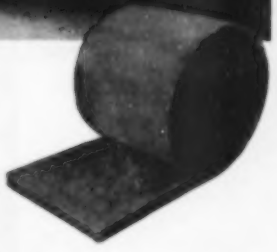
HAROLD L. CARTER and JOSEPH SLUTSKY, Architects, announce consolidation of their offices as CARTER & SLUTSKY, 396 Magee Bldg., Pittsburgh 22, Pa.

WILLIAMS, WILLIAMS & WILLIAMS, Architects, Oasis Bldg., 121 S. Palm Canyon Dr., Palm Springs, Calif.



Foster High School, Seattle, Washington, awarded First Prize by the American Association of School Administrators. Architect: Ralph H. Burkhard



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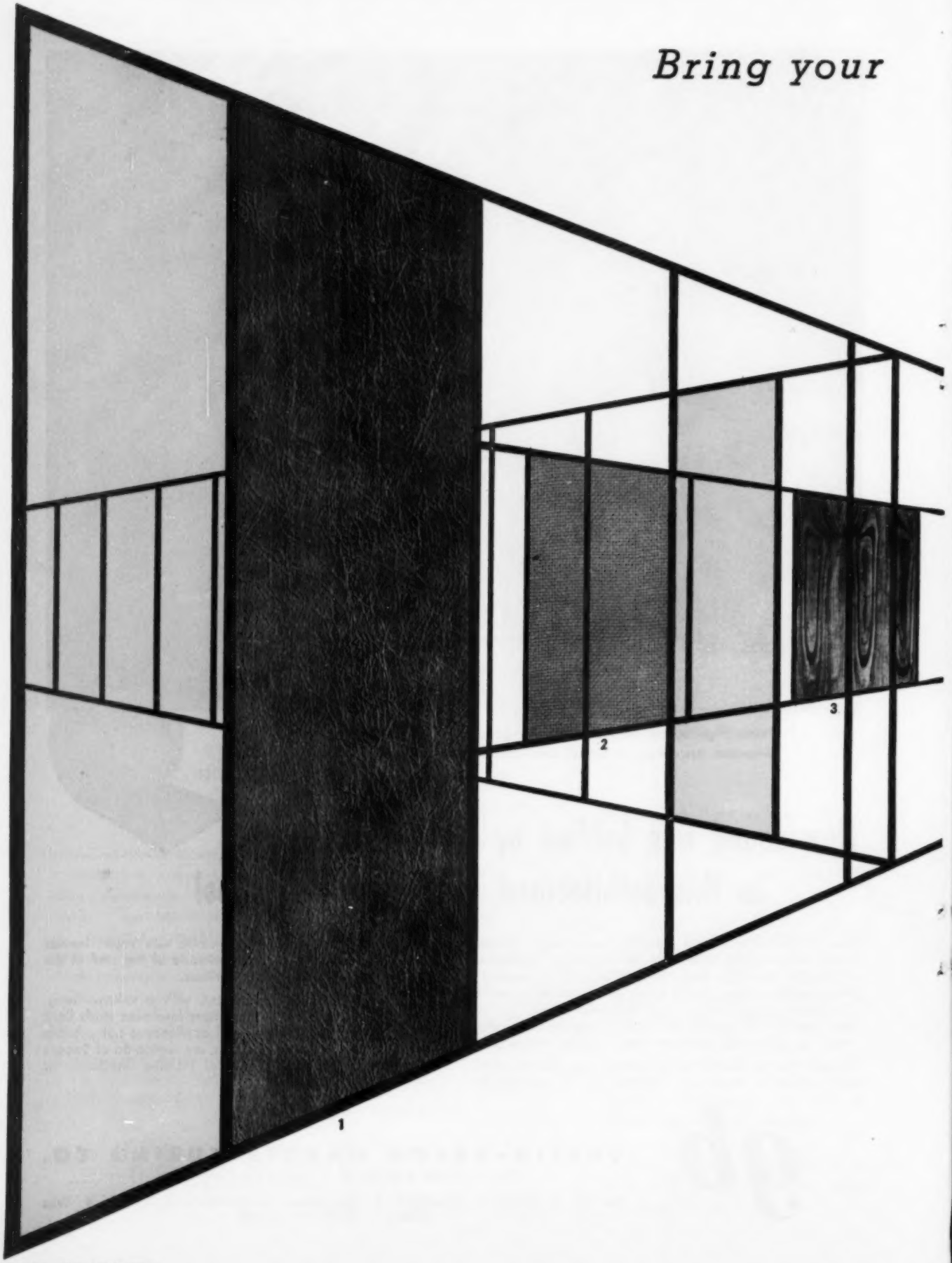

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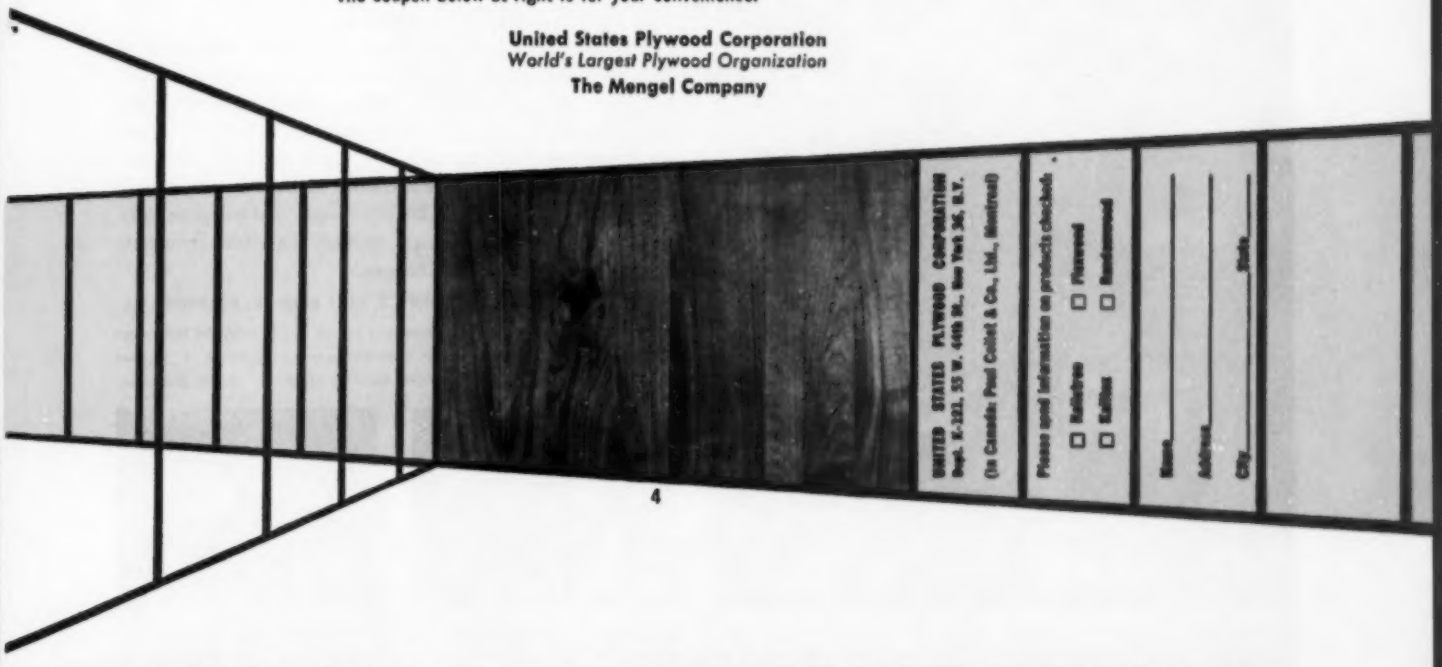
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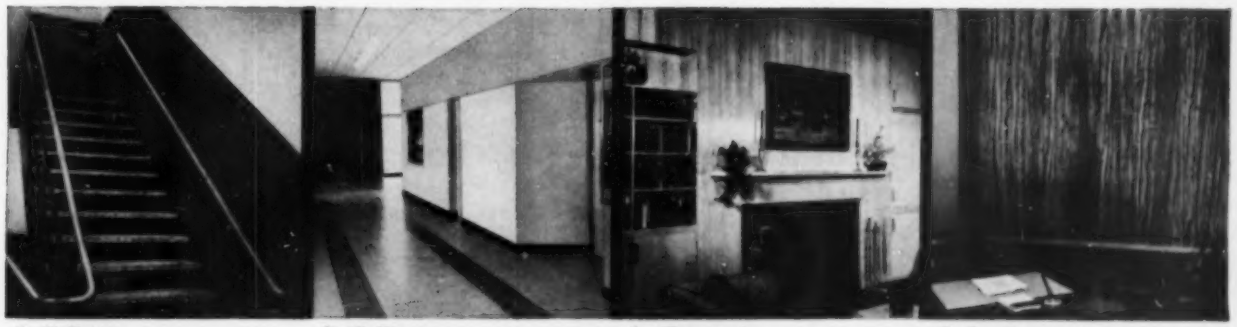

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. . . specified for major air conditioning project at SOUTHERN METHODIST UNIVERSITY

Aerial view of the campus, scene of enormous postwar building program. Architect: Mark Lemmon. Engineers: Zumwalt & Vinther, J. W. Lacy. Gen'l Contractors: Henger Construction Co., Robert E. McKee, O'Rourke Construction Co. Air Conditioning Contractors: C. Wallace Plumbing Co., Farwell Co., Martyn Brothers, Inc.

First great university to initiate a comprehensive program for air conditioning classrooms, Southern Methodist University now has comfort cooling in eleven buildings. Another air conditioned building is under construction, two are proposed, and the application of air conditioning to four existing buildings is under consideration for the Dallas institution.

Based upon performance in early installations, thousands of Barber-Colman Uni-Flo Wall Diffusers and Grilles, plus Venturi-Flo Ceiling Diffusers are now providing a healthful, comfortable, draft-free atmosphere for students and faculty. Results speak for themselves in efficient diffusion, quiet operation, easily adjustable deflection and volume control in units noted for rigid construction and attractive, modern design. The complete story on finest air distribution equipment made is available from your nearby Field Office or by writing us.

BARBER-COLMAN COMPANY, DEPT. D, 1131 ROCK ST., ROCKFORD, ILL.

Air Distribution Products • Automatic Controls • Industrial Instruments Aircraft Controls • Small Motors • OVERdoors and Operators • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery

Fondren Science Building, where 224 Uni-Flo Sidewall Diffusers and Venturi-Flo Ceiling Diffusers distribute air evenly, quietly.

Bridewell Library required 141 Uni-Flo Sidewall Diffusers and 63 Venturi-Flo Ceiling Diffusers for quiet, draft-free air flow.

Perkins Chapel—34 Uni-Flo and Venturi-Flo units assure quiet comfort. Similarly equipped is Highland Park Methodist Church located on the campus.

Classroom in Kirby Hall, Perkins Quadrangle. In this new Quadrangle, seven new buildings have been equipped with Barber-Colman Air Distribution products since 1950. Note double deflection "MA" Sidewall Diffusers which have integral volume control, easily removed cores.

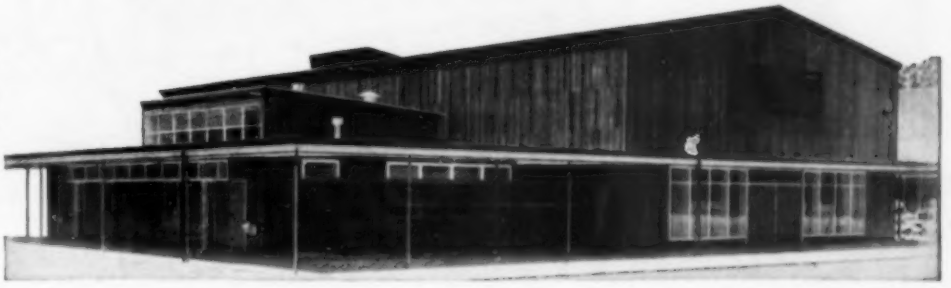
BARBER COLMAN

ELECTRIC

Control Center

Modern electric control system provides low-cost solutions to heating and ventilating problems at TIERRA LINDA SCHOOL

Location: San Carlos, California. *Architect:* John Lyon Reid. *Consulting Engineer:* Dwight Coddington. *Heating Contractor:* Schlegel Plumbing Contractors, Inc.



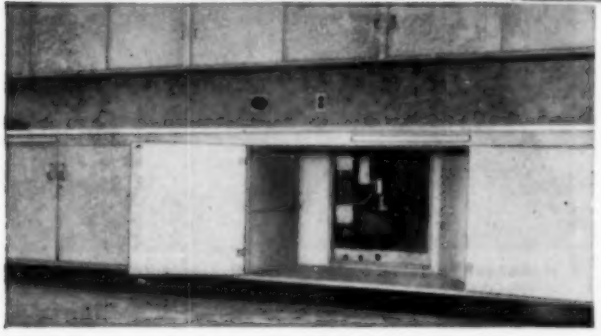
As modern as the building design itself are the electric temperature control and air distribution systems installed in Tierra Linda Grade School. Atmospheric conditions are provided which contribute to the alertness of students and faculty, yet require minimum attention and expense. Each area having specialized requirements is individually engineered.

Four major benefits resulted from Barber-Colman's "Control Center" technique in this excellent example of contemporary grade school housing: (1) automatic electrical operation, requiring minimum attention, yet permitting optional manual control; (2) lowered fuel and electric costs; (3) low-cost installation in widely separated buildings; (4) satisfactory operation with low maintenance.

Unitary control systems handle radiant panel heating, unit heaters, convectors, and ventilation in the eighteen classrooms, locker and shower rooms, music room, library, materials center, toilets, closets, general-purpose room, and administrative offices. Systems can be checked or revised at the "Control Center."

Get the complete story on modern control methods, including the B-C "Control Center" technique by phoning nearby Field Office (consult telephone directory), or writing us.

Big cost-saving factor is B-C "Control Center" in boiler room. Here, at one central junction point, are prewired accessories and numbered terminal strips for connecting all electrical components of each unitary control system.



In multi-purpose auditorium (above), Barber-Colman Uni-Flo Diffusers and Return Grilles provide healthful, draft-free air distribution. Space is saved (left) by installing electrical components in partitions behind cabinets. Controls require no floor space, yet are readily accessible. Temperature of each room is controlled independently within close limits for comfort of occupants. Installation in boiler room included proportioning-type, adjustable-ratio, outdoor reset controls actuating motor-operated valves for supplying hot water to radiant heating system.

BARBER-COLMAN COMPANY, ROCKFORD, ILL., U. S. A.

Dept. D, 1331 Rock St. Field offices in principal cities.

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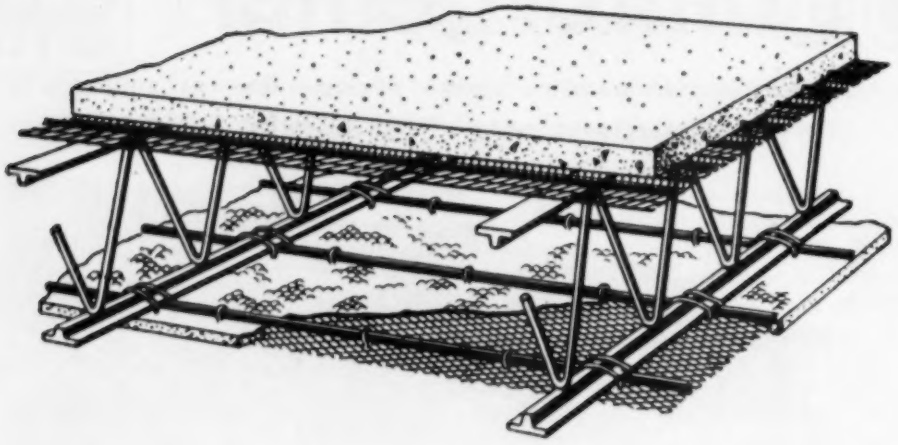
Aircraft Controls • Small Motors • OVERdoors and Operators • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery



THIS TRUSCON "PACKAGE" MAKES FLOORS AND

"Clerespan"® and "O-T"® Steel Joists, Ferrobord® Steel Roofdeck, Metal Lath, and Welded Wire Fabric all available from one dependable source

● Here's low-cost, practical floor and roof construction that fits modern building ideas and techniques. You support floors and roof with Truscon "Clerespan" or "O-T" steel joists. Lay in Truscon Self-Sentering Metal Lath as base for the concrete floor. Reinforce floors with Truscon Welded Wire Fabric.

Tie Truscon Metal Lath to the underside of joists. Finish with plaster for fire-resistance.

For the roof, Truscon Ferrobord Steeldeck attaches directly to joists. Insulate to the degree required

"O-T"® STEEL JOISTS are adaptable to all types of building. Open web permits free passage of pipe and conduit, allows air passage in radiant heating systems. Write for "O-T" Open Truss Steel and Nailer Joist loading tables.

FERROBORD® STEELDECK provides interlocking units long enough to span three or more purlins. No scaffolding needed for erection; work is done from above. Can be clipped or welded to joist. Write Truscon for facts.

"CLERESPAN"® JOISTS provide clear spans up to 90-feet. They directly support slab or deck without intermediate columns, permitting unobstructed use of large floor areas. Easily installed. Available with underslung or with square ends. Write Truscon for tables of safe, uniform loads.

ROOFS LIGHTWEIGHT, FIRE-RESISTANT, ECONOMICAL

and add waterproofing. With this packaged system, work goes fast. Costs are moderate. All steel materials are available from one source, with deliveries keyed to building schedules. More information in Sweet's; or write Truscon for details and specifications.

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TRUSCON STEEL DIVISION a name you can build on
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1060 ALBERT ST. • YOUNGSTOWN 1, OHIO
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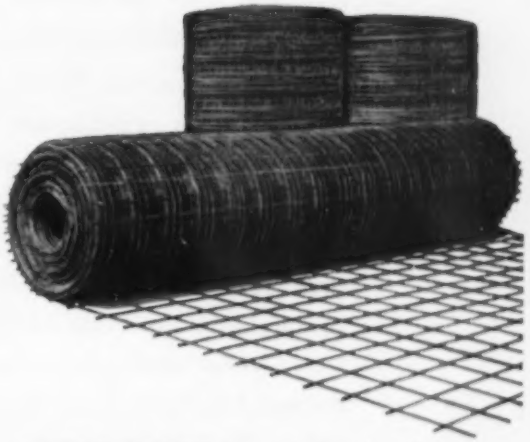

WELDED WIRE FABRIC. Accurately formed; welded at each intersection. Available in warehouse stocks in easy-to-handle rolls. Order the same way you order ready-mix. Reinforcing bars, too.

TRUSCON METAL LATH. More than forty different types and accessories. Accepted by all building codes. Easy to form, easy to erect, easy to work over. In warehouse stocks. Write Truscon for detailed specifications.

Truscon Steel Division, Republic Steel
1060 Albert Street, Youngstown 1, Ohio

Please send me literature describing Truscon products for floor and roof construction. I understand there is no cost, and no obligation.

Name ..... *Title* .....

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Certified

A Significant Development in Lathing and Plastering... of Vital Interest to the Building Industry!

This Emblem

of Certified Craftsmanship symbolizes higher standards of job performance and responsibility in lathing and plastering.

It is the emblem developed by the National Bureau for Lathing and Plastering, an organization of lathing and plastering contractors and lathing and plastering craftsmen.

Certified craftsmanship is a working reality. It means that job performance and responsibility will comply with the Code of Standard Practices for Lathing and Plastering, prepared by the National Bureau and subscribed to by local chapters throughout the country. Scores of such chapters are already established. New ones are being formed every month.

Associated Manufacturers of Lathing and Plastering Materials

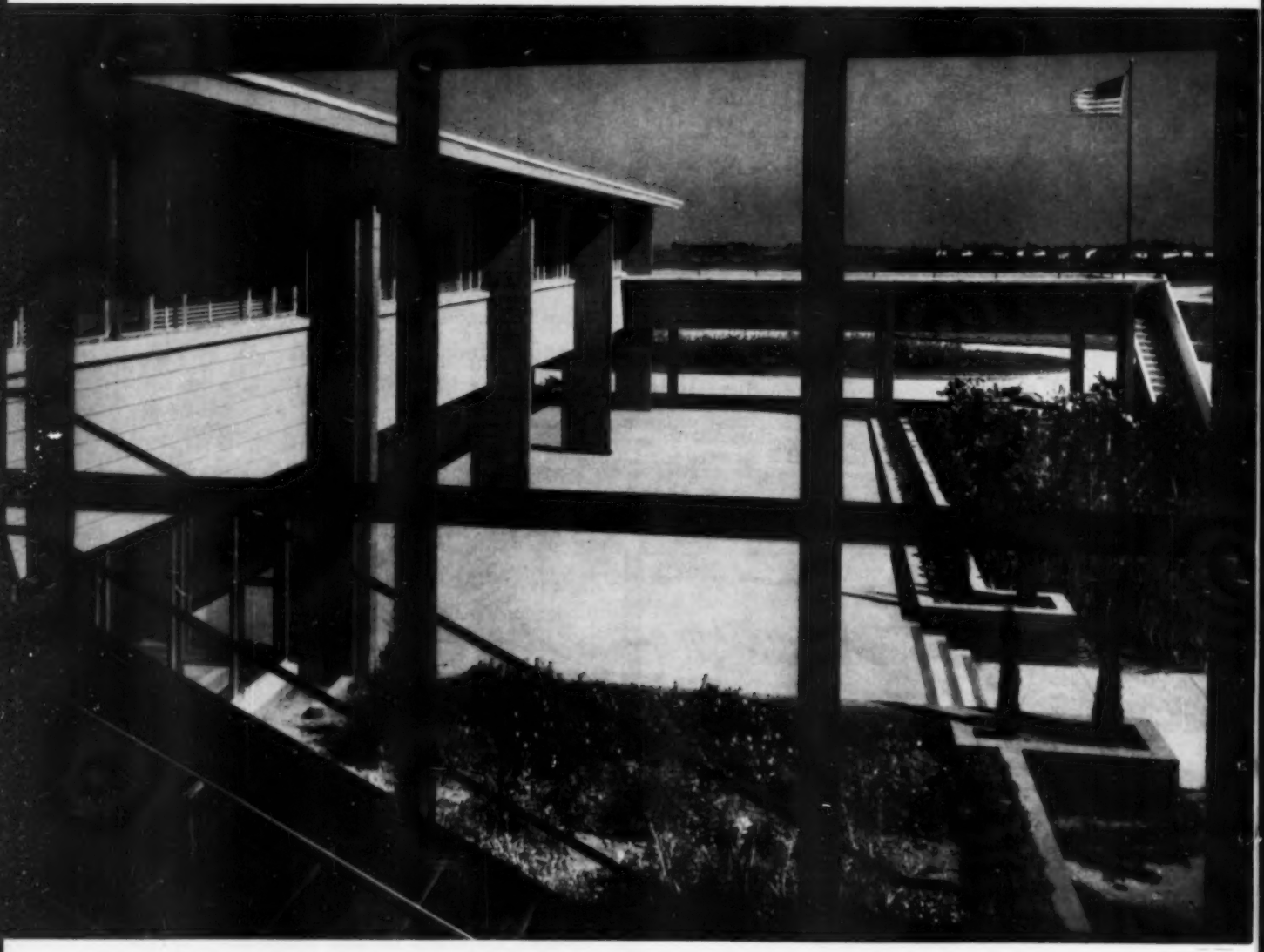
Craftsmanship...

This Pledge of Performance

is your *written* and *signed* assurance that the lathing and plastering on your job will be in compliance with this newly adopted Code. It is a *written* commitment to work schedules, job cooperation, work of craftsmanship calibre and nationally recognized standards of quality. It is yours for the asking, on specific jobs, from lathing and plastering contractors adhering to the Code of Standard Practices for Lathing and Plastering.

For full appreciation of this Pledge of Certified Craftsmanship we suggest a thorough reading of the Code of Standard Practices which appears on the back of every pledge. Ask your contractor for a copy and for the complete story of this significant program.

Beauty isn't *distorted* when you



From inside or outside, the windows are beautiful in the Lea County Community Hospital, Hobbs, N. M. Ventilating windows are of ⅛" L·O·F Polished Plate Glass. Fixed windows are of ¼". Nursery partitions are L·O·F Safety Plate Glass. Architect: W. L. Pereire, Los Angeles.

NO FINER GLASS THAN

LIBBEY · OWENS · FORD

specify L·O·F POLISHED PLATE GLASS

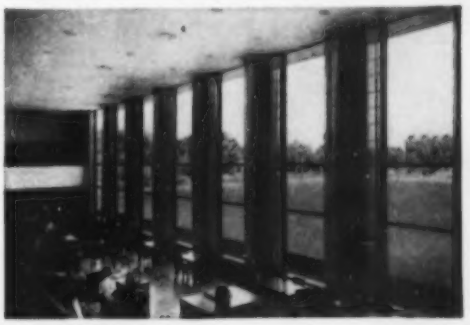
Penny-pinching on glass can result in a sorry-looking building. Its trim exterior lines and interesting texture can be ruined by misshapen reflections in the windows. Don't forget, every window is a mirror from outdoors, and mirrors should be plate glass to assure beautiful, undistorted reflections.

Similarly, from inside looking out through plate glass, there's no imperfection in the view. Things you see don't wave or warp. For owner and architect, there's lasting satisfaction—lasting as long as the building stands—in windows of plate glass. And the premium paid for it is really not great.

When you specify L·O·F Polished Plate Glass, you and the owner are assured of quality as fine as can be had. You can get this fine glass in all the standard specifications; also, in the form of mirrors, *Thermopane*® insulating glass, blue-green Heat Absorbing Glass, Safety Glass and *Tuf-flex*®, tempered for extra strength.

For details on any of the standard or special types of plate glass or for counsel on any glazing problem, call your nearest L·O·F Glass Distributor or Dealer. Or write Libbey·Owens·Ford Glass Company, 8344 Nicholas Building, Toledo 3, Ohio.

Note the unwavering straightness of the building lines even when viewed at an angle through L·O·F Polished Plate Glass, used throughout Edgebrook School, McHenry, Ill. Architect: Raymond Orput & Associates, Rockford, Ill.

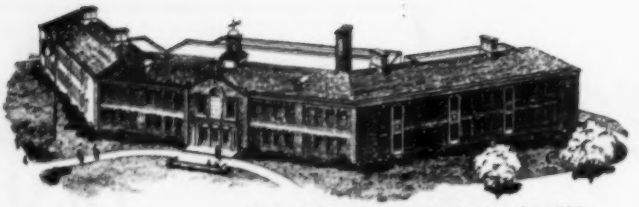


This daylight wall in the main reading room of the Phoenix (Ariz.) Public Library is glazed with L·O·F Polished Plate Glass. Doors of the building are L·O·F *Tuf-flex* tempered plate. Architects: Albin Dow, Midland, Mich., and Lescher and Mahoney, Phoenix.

POLISHED PLATE GLASS

L·O·F GLASS · Carrollton · FIBER-GLASS

Architect:
Charles Bacon Rowley and Associates Inc.
Cleveland, Ohio
General Contractor:
Leo W. Schmidt Co., Cleveland, Ohio
Flooring Contractor:
Owens Flooring Co., Cleveland, Ohio



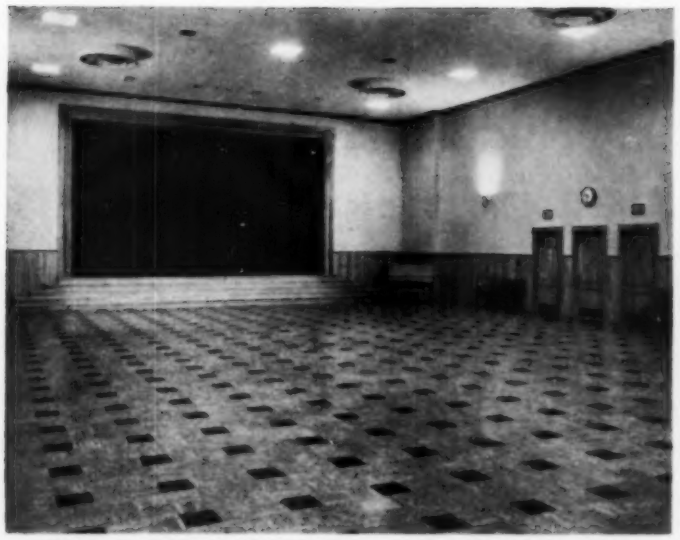
Mercer Road School—Shaker Heights, Ohio

KenRubber floors used throughout new Shaker Heights school

Outstanding quiet and comfort underfoot will not diminish with years of constant traffic . . . because resilient KenRubber has all the cushioning firmness and durable strength of coiled steel springs.

KenRubber is used in all classrooms. Attractive colors lift student morale, resilience deadens unnecessary sounds. Maintenance is extra economical with damp moppings and occasional no-rub waxings.

The vulcanizing process used in making KenRubber is the same that gives quality automotive tires their lasting strength and resistance to repeated shock. That's why KenRubber muffles floor clatter . . . eases every footfall. And that's why KenRubber is a restful floor . . . one that reduces fatigue for student and teacher alike . . . encourages concentration during study and lecture hours.



KenRubber colors are lighter, brighter...ideal for use in today's auditoriums, school rooms and offices. The wide modern selection available ranges from deep, clear dark colors to crisp, clean light tones . . . makes any flooring design desired simple to plan . . . quick and economical to execute.

Another money-saving advantage of KenRubber is installation economy. Uniform marbleization plus precision edges and corners means quicker alignment . . . reduced labor time and expense.

Architect CHARLES BACON ROWLEY says:

"KenRubber was used because students' needs came first"

Charles Bacon Rowley has been responsible for many of the most noteworthy educational installations in the Cleveland area...where he has been practicing since 1921. To his credit are the designs for outstanding schools of every kind . . . including college buildings as well as secondary units. Because of this wide experience, Mr. Rowley knows intimately what school-aged children—and their teachers—need . . . has chosen KenRubber many times for its colorful beauty, resilient strength and durable economy.

Specifications and Technical Data

INSTALLATION: Over any smooth, firm interior surface removed from grease and oils. With new KenSet® Adhesive, KenRubber can now be installed easily and economically over concrete in contact with the earth.

THICKNESSES: KenRubber is available in .080" (standard gauge) and 1/8" gauge for normal flooring demands . . . 3/16" gauge for extra-heavy duty applications.

SIZES: Standard tile size is 9" x 9" . . . with a wide range of special sizes available on order.

APPROXIMATE INSTALLED PRICES
(per sq. ft.)

	Standard (.080") Gauge	1/8" Gauge	3/16" Gauge
KENRUBBER	50¢	65¢	80¢

These costs are based on a minimum area of 1,000 sq. ft. over concrete underfloor. Cost of KenRubber's exclusive die-cut decorative ThemeTile is available from the Kentile Flooring Contractor. He's listed under FLOORS in the Classified Telephone Directory.

If you haven't worked with a Kentile, Inc. Flooring Representative, you can't know how valuable his technical training and years of practical experience can be to you. Call on him for every flooring problem . . . whether remodeling a small area or constructing a major project. For his name write the nearest of the Kentile, Inc. offices listed below.

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Fenestra 50 YEARS

"A salute to those who made it possible" *

St. Mary's Parish School, Hammond, Ind. *Architect:* Bachman & Bertram, Hammond. *Contractor:* Swenson-Carlson Bldrs., Inc., East Chicago, Ind.

New Acoustical Structural "D" Panels. Width 24". Depth 1½" to 7½".

Noise disappears inside this ceiling!

There are no acoustical gimmicks stuck on this ceiling. Nothing that has to be applied to its surface by expensive tradesmen. Nothing that can come loose and fall down. Here the ceiling *itself* is the silencer. It is formed of remarkable *acoustical-structural,* long-span Fenestra* Building Panels.

This single compact package is beautifully finished structural ceiling, non-combustible acoustical treatment and acts as a joist system support for finished roofing. And, if your building has a second story, your Fenestra ceiling forms a strong, solid subfloor for rooms above. You can see the economy of using versatile Fenestra Building Panels.

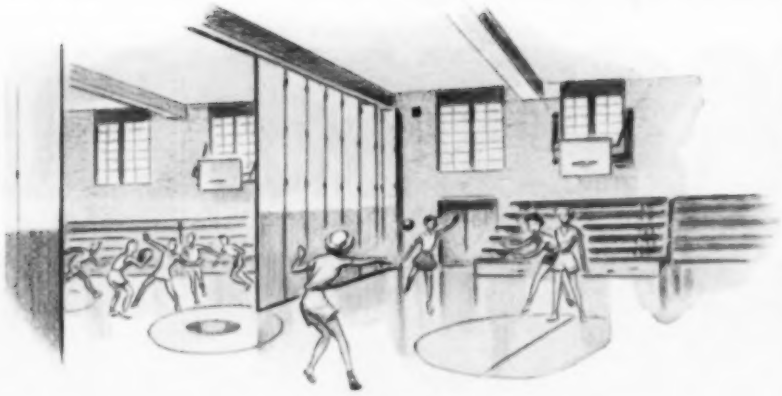
Fenestra Acoustical Panel is a strong metal box beam (or beams) with a strong, structural top surface, a flat, perforated bottom surface and glass fiber insulation in the space between. These panels are made exclusively by Fenestra (Detroit Steel Products Company)—one of America's largest and best-known producers of metal building products.

For full details call your Fenestra Representative listed in the phone book yellow pages, or write, Detroit Steel Products Company, Dept. PA-4, 3409 Griffin Street, Detroit 11, Michigan.

*Trademark

* Your need for a maintenance-free, non-combustible, built-in acoustical treatment encouraged us to develop Fenestra Structural-Acoustical Building Panels—a great advancement in building products.

Fenestra | METAL BUILDING PANELS



Horn Folding Partitions divide a gym into separate areas—one for boys and one for girls or one for physical education teaching stations and one for games.

For intra-school contests or team practice, Horn Folding Gym Seats are safely out-of-the-way when folded. Partitions are folded and Gym Seats completely extended when tournaments or exhibitions attract spectators. Roll in a Horn Folding Stage for assemblies, meetings, speakers.

GYMNASIUM

It's simple arithmetic! The addition of Horn equipment multiplies classroom and gymnasium use. Horn Folding Partitions, Gym Seats, Stages, and Horn Classroom Wardrobes provide maximum flexibility and efficient use of school floor space.

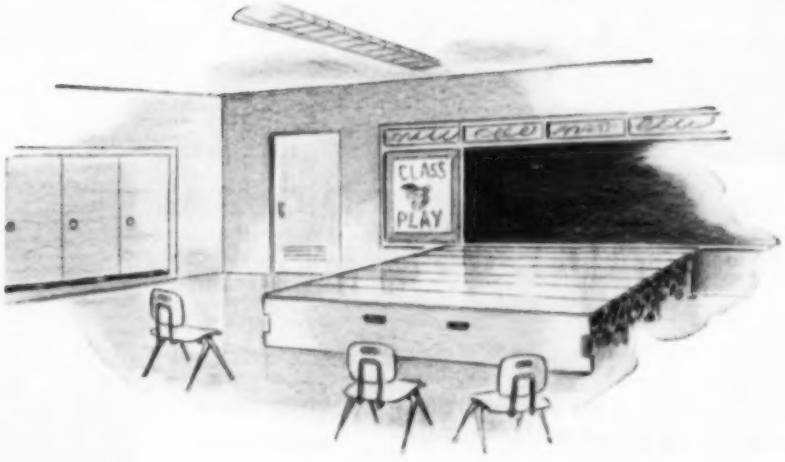
How to get the most out of your

Horn

Installing Horn equipment in your classrooms and gym adds up to flexibility plus efficiency plus economy. Horn representatives will help you determine your needs for multi-purpose Horn equipment. Write today for name of your Horn representative.

School Equipment Division of
THE BRUNSWICK-BALKE-COLLENDER COMPANY
623 South Wabash Avenue • Chicago 5, Illinois

CLASSROOMS



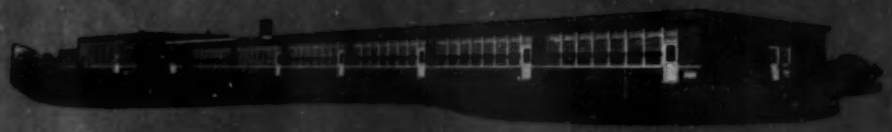
Divide classrooms with Horn Folding Partitions, too—for study and for recitation or into junior classes and senior classes. The mobile Stage is useful in the classroom for smaller meetings, student performances, public speaking instruction.

The Horn Classroom Wardrobe provides adequate storage space for supplies and clothing, and its bulletin or chalkboard facing puts wall space to use.

QUALITY APPROVED

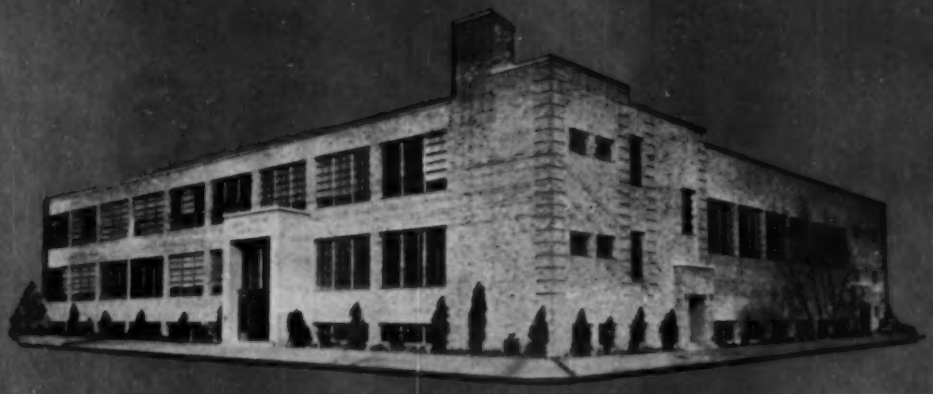
Architects, school officials and ALUMINUM

• South Mountain Junior H.S., Allentown, Pa.
Architects: Hoyt, Reed & Miller
Contractor: L. W. Hunsicker Co.



• Colwyck School, Wilmington, Del.
Architect: E. Wilton Martin
Contractor: Rupert Construction Co.

• Troy High School, Troy, N. Y.
Architect: Frank J. Morgan
Contractor: Christenson & Nielsen



• St. Joseph's Parochial School, Camden, N. J.
Architect: Thomas J. Earley

SURFACE PROTECTION IS NOT ENOUGH!

Only aluminum is rustproof through and through

Only when you insist on aluminum windows can you be sure of windows that *never, never* rust...windows that *never* need painting. Regardless of claims, mere surface protection against rust is not enough. Wear, unintentional scratches in delivery or installation may nullify any protective surface coating and soon require painting. For your protection insist on aluminum—it's rustproof through and through.

TAXPAYERS give HIGHEST rating to

WINDOWS

for lowest maintenance costs!

Architect or Member of the School Board—you can keep annual maintenance expenses on your new school buildings at an absolute minimum, if you insist on "Quality-Approved" aluminum windows.

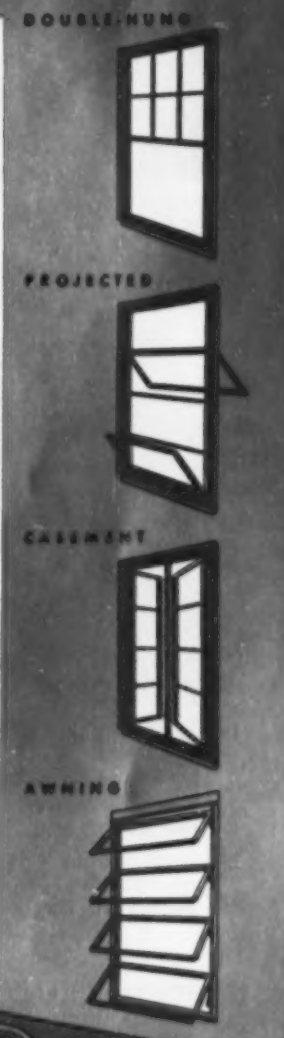
Aluminum windows are a really worthwhile investment from any way you look at them. They remain beautiful for the life of the building. They always operate easily, keep out cold drafts, eliminate rattling, give more light and better visibility. They cannot rust or rot . . . *NEVER* need painting or costly repairs . . . save important maintenance dollars year after year. And that's why more and more school boards are insisting on "Quality-Approved" aluminum windows for every new building.

"Quality-Approved" aluminum windows are available through many manufacturers in sizes and styles (double-hung, casement, projected and awning) to fit any design treatment. Only those that carry the "Quality-Approved" Seal have been tested by the Pittsburgh Testing Laboratory and approved for quality of materials, construction, strength of sections and minimum air infiltration. That's why it is so important to look for the red Quality Seal when you order or specify.

For copy of our 1954 window specifications book and names of approved manufacturers, see Sweet's (16a/ALU) or write today. Address Dept. PA-4.

Aluminum Window Manufacturers Association

74 Trinity Place, New York 6, N. Y.

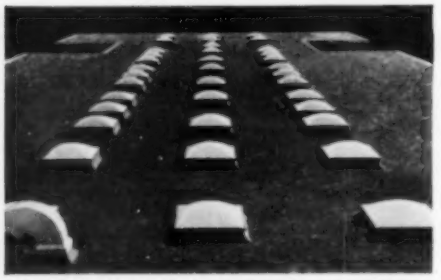


INSIST ON THIS SEAL FOR YOUR PROTECTION

TOPS IN TOPLIGHTING

TAXPAYERS, STUDENTS AND FACULTY BENEFITED when Frazier & Raferty, Geneva (Ill.) architects and engineers, specified Wascolite Skydomes for the new John B. Turner School in West Chicago. Skydomes enabled architects to plan evenly daylighted classrooms — 28′ wide x 33′ deep, thus reducing exterior wall perimeter and cutting over-all building costs.

ELECTRIC LIGHTS RARELY NEEDED in corridors and classrooms. "Classroom electric lighting costs have been reduced approximately 60% over other classrooms in the school system."



CLASSROOM AREAS farthest from windows are lighted by three 4′ square Skydomes. "Shape of classroom permits varied seating arrangements without regard to source of light."

LOWERING OF CEILING HEIGHT to 9′ by the use of WASCOLITE SKYDOMES reduced masonry costs — gave classrooms an intimate air that benefits students psychologically. Architects report: "Glare is far less than in the clerestory method of lighting the deep classroom."

WASCO DAYLIGHTING STUDY for the classrooms in this project resulted in an average maintained illumination of 55 ft. candles based on an overcast sky brightness of 1000 ft. lamberts. Send the floor plan of your project and lighting requirements. Wasco Engineering Service will make recommendations without obligation.

CREDITS: Frazier & Raferty, Architects; Edward H. Fairbank, Partner in charge; Wm. A. Gavelek, Mechanical Engineer; Thomas R. Shaver, Structural Engineer; H. G. Booth, Superintendent of Schools; Perkins & Will, Consulting Architects; Ragnar Benson, Inc., General Contractor.

wascolite skydomes

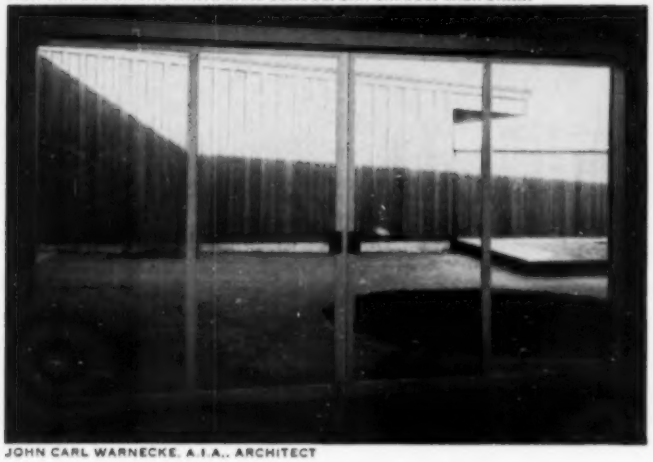
See Sweet's Catalog or write..... **WASCO FLASHING COMPANY,** 90 Fawcett Street, Cambridge 38, Mass.

Arislide

Steel Sliding Doors

for modern schools

NEW ANNEX FOR THE WHITE OAKS SCHOOL, SAN CARLOS, CALIFORNIA



JOHN CARL WARNECKE, A.I.A., ARCHITECT

When you're designing a school around the modern principle of indoor-outdoor education, keep in mind Arislide doors.

Arislide's many quality features include roller bearing rollers, stainless steel-capped track, bronze hardware and spring bronze weather-stripping.

Note: Michel & Pfeffer supplied all Ariston solid-section steel windows used in this school.

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Arislide Steel Sliding Doors
Address: 212 Shaw Road, South San Francisco, California

Please send Arislide Steel Sliding Doors Catalogue

Your name _____

Firm _____

Address _____

City and State _____

There's an Arislide door to fit your job! 5' to 25' widths, 6' 10" heights. Special types and sizes furnished to meet individual requirements.

ARISTON Metal Products

Since 1912

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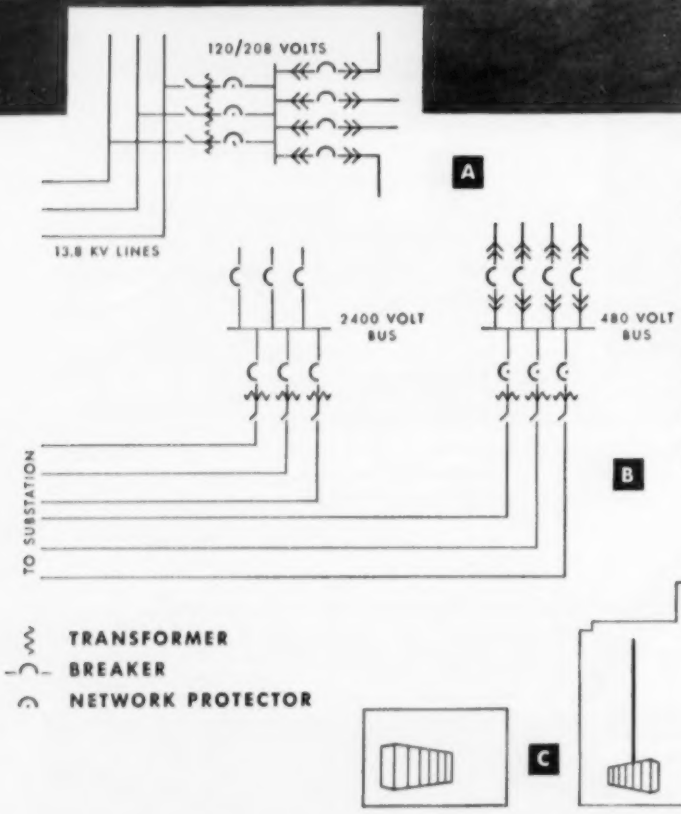


Power is supplied at 13.8 kv to:

(A) ALL SPOT NETWORKS throughout the project. Three feeders serve each power center. Should one fail, the other lines still serve all loads. If two fail, all nonessential load is dropped. If the third fails, all loads are dropped and only designated ones are supplied by a 5000-kva emergency turbogenerator set, located (B) IN THE POWERHOUSE. There, both 2400-volt and 480-volt service is available for power loads. (C) IN THE MAIN HOSPITAL, five spot networks feed all loads through bus duct risers.

Architects & Designers:
General Services Administration
Public Building Service

Electrical Contractors:
Harry Alexander, Inc., H. P. Foley Co.,
E. C. Ernest, Joint Adventurers
Electrical Construction

WORLD'S NEWEST RESEARCH HOSPITAL

U. S. Public Health Service's new National Institutes of Health at Bethesda, Maryland, is an excellent example of advanced hospital design—based on a sound functional program that covers both present and future requirements.

The entire architectural plan, in fact, reflects the Institutes' critical mission: to conduct research on virtually every known disease. All buildings have been designed specifically for that function. Result: ultimate in research and treatment facilities.

The key in this plan is the 500-bed, air-conditioned main hospital building, upper left. Here, treatment efficiency dictated floor layout. Practically every patient's room has been located adjacent to laboratory facilities.

Future hospital requirements have also been adequately covered in the original plan. Without any additions to the building, present facilities can be expanded to 2500 beds in an emergency.

What makes a Functional Electrical System

Function again became the guide when a method for distributing electrical power was selected. After a complete analysis of the Institutes' vital assignment, the project's engineers adopted a spot network system, described at left. And, by matching it with the unitized distribution equipment covered on the next pages, the National Institutes of Health is assured uninterrupted electrical service . . . in all areas . . . with adequate provision for future expansion.

The construction application engineer in your nearest Westinghouse Office offers this same kind of planning help to you and your engineers. Call him for complete details. Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa. J-94006

YOU CAN BE SURE...IF IT'S Westinghouse

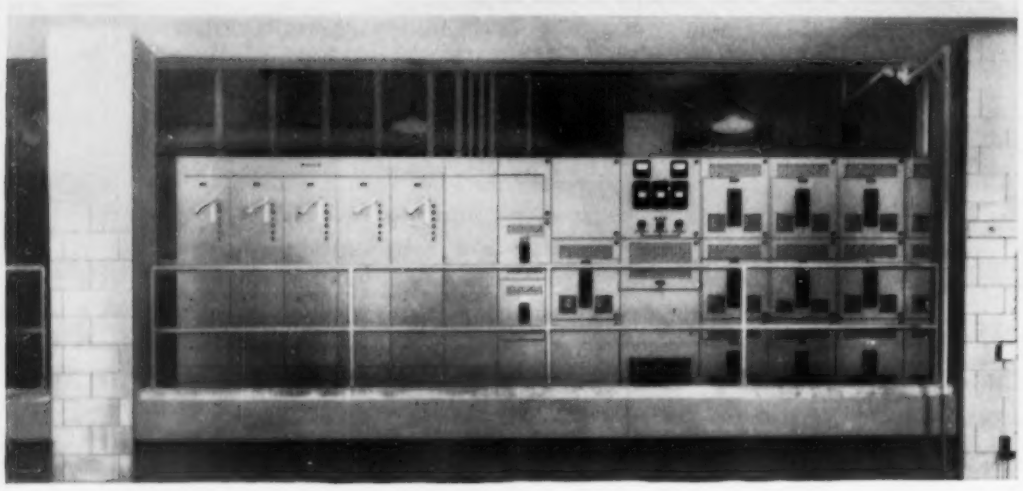
MAIN HIGH-VOLTAGE SWITCHGEAR feeds and protects 19 spot networks throughout the 15-building research center.

CONTROL CENTERS...FOR FLEXIBILITY...*a vital factor*

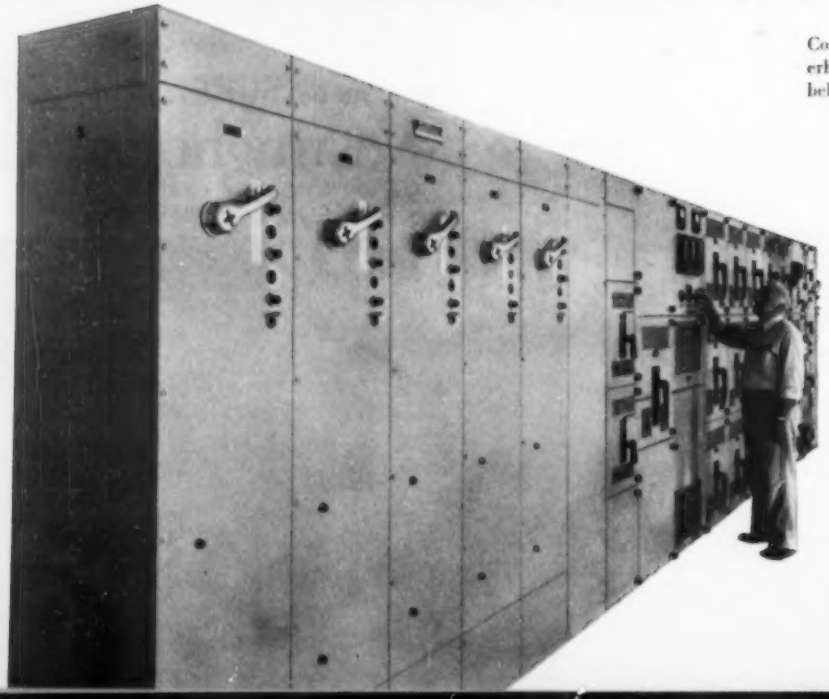
In the powerhouse, grouped motor control—in Westinghouse centralized control centers—contributes substantially to smoother operation of the hospital. All motor starting and circuit protective devices are housed in a neat bank of unitized, easy-to-service structures. In just a few steps, then, one man covers the extent of motor control for all air conditioning and other important service facilities. As a result, trouble-free and more efficient operation of these services is assured.

Complete flexibility of electrical components, as well as modular-constructed units, gives the Westinghouse Control Center ability to expand to any future needs of the research center. This type of structure may hold as many as five motor starter units and can be added to, moved anywhere, or repositioned as needed. Arriving at the National Institutes of Health completely assembled, wired and tested, the control center was ready to operate after a minimum of installation effort.

J-27040



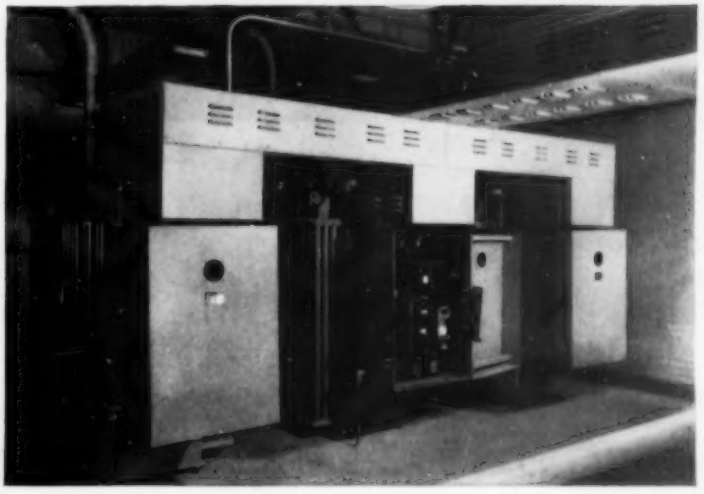
Control Center Balcony Location in the powerhouse allows the operator to see the motor, below, while inspecting its control unit.



Installation Flexibility permits control center to be close-coupled to the power center, further centralizing the control equipment serving this area.

Modern power centers can be located at the center of load for most efficient and economical power distribution. At right is switching portion of power center.

Lower right. Here is transforming section of power center, showing the low-voltage network protectors.



HIGH SERVICE CONTINUITY AND ECONOMY...*designed in*

Electrical distribution facilities at the National Institutes of Health are matched to functional needs. The project's engineers designed a system that provides all research areas with exceptionally reliable service—and it does this economically.

Primary 13.8 kv feeders are carried throughout all buildings to spot network power centers. This reduces wiring costs and minimizes power losses.

One to five "spot-network" units have been located in every building to transform the high voltage down to utilization level. Each network contains three transformers. Should trouble develop on one, the other two carry the load. This not only assures excellent service continuity, but also spells out further savings. Since the transformers in the individual networks share one another's peak loads, smaller size units are permitted.

J-60015

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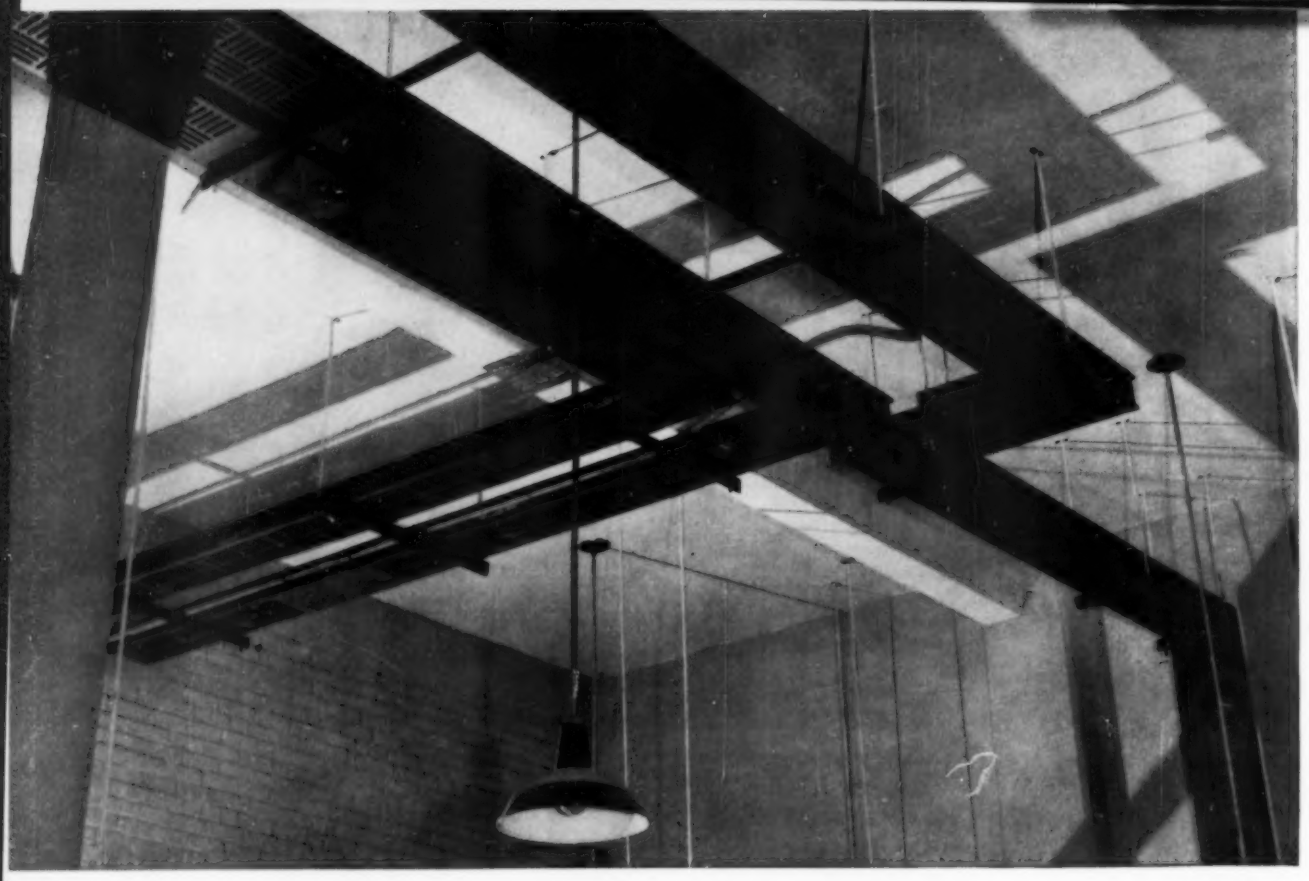


Sound, modern, compact

BUS DUCT IS FLEXIBLE

The power arteries of this hospital are Westinghouse Low-Impedance Bus Duct. It was a sound choice. For bus duct is the ultimate in modern, flexible power distribution.

Due to greater current-carrying capacity, bus duct required considerably less space than cable and conduit . . . carries power more efficiently. Standard, prefabricated sections coordinated perfectly with building plans . . . were quickly and easily installed. Bus duct is smart, modern in appearance . . . runs and risers blend smoothly into the interior design of the hospital. Best of all, bus duct is flexible—meets changing load demands; provides sufficient reserve capacity to handle future loads without expensive rewiring.

J-30167

Low-impedance bus duct riser carries power from low-voltage switchgear to panelboards, located in wire closets on each floor.

Space, safety, added load with

PLANNED-IN PANELBOARDS

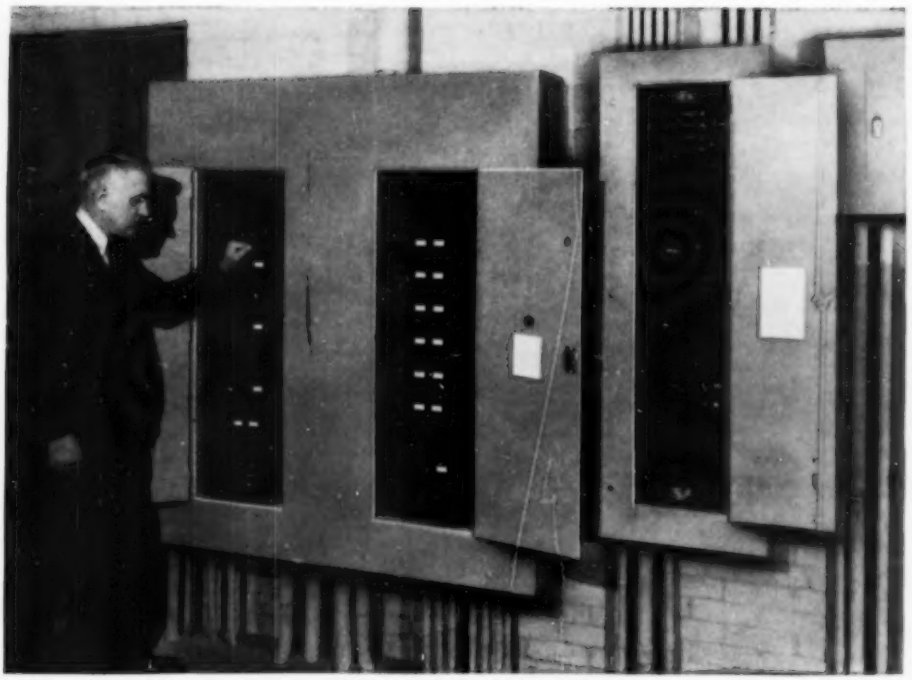
The final, functional link in this hospital's unique electrical distribution system is provided by Westinghouse De-ion® Circuit Breaker Panelboards. Built to one unvarying standard of quality and performance, each Westinghouse Panelboard was, nevertheless, individually engineered to match the requirements of specific, local electrical services.

Critical space was saved—because Westinghouse Panelboards are compact. Safety was gained because Westinghouse De-ion Circuit Breakers in these panels can be operated without danger . . . will not interrupt vital hospital services needlessly. Future additions or changes in load will be easily accomplished—because extra circuit capacity has already been provided.

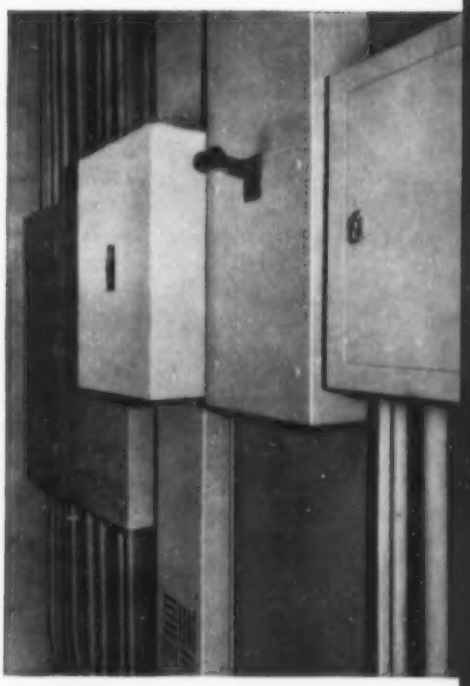
J-93520

YOU CAN BE **SURE**...IF IT'S

Westinghouse



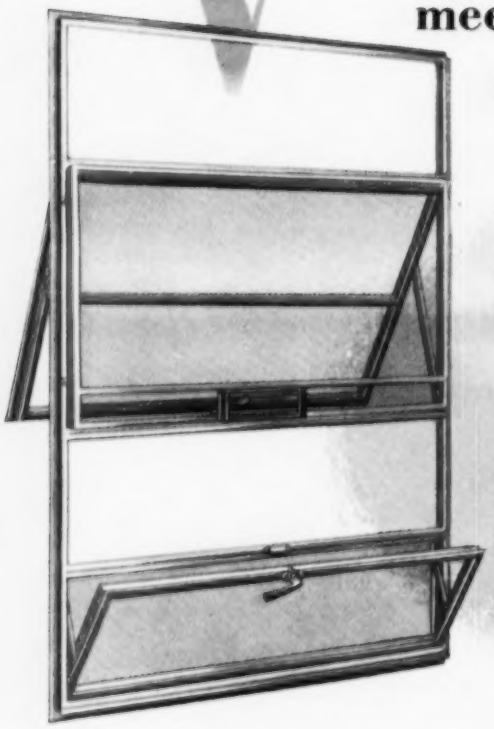
Tripped circuits can be seen at a glance—because all Westinghouse De-ion Circuit Breaker handles assume central position on automatic tripping.



Panelboards are mounted in wire closets on each floor. They provide for centralized control of electrical services.

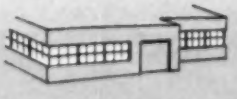
Visioneering*

meets the demands of modern building trends

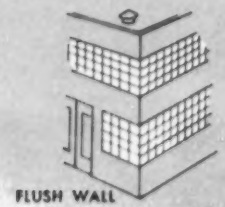


BAYLEY

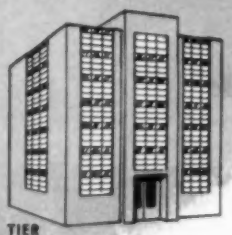
aluminum projected windows in panel wall arrangements



BAND ARRANGEMENT



FLUSH WALL ARRANGEMENT



TIER ARRANGEMENT

As a result of Bayley Visioneering you can now execute many of your choice design treatments in modern panel-wall construction, without the costliness of special window designing. With Bayley subframe design, which accommodates separate window units, standard Bayley Aluminum Projected Windows (with channel frames) of any standard size can be used—offering wide flexibility in the use of newer panel decorating materials, plus the desired window area for providing maximum air, light and vision.

Window units are available in a variety of ventilator arrangements. And in addition to the many other advantages of the projected type window, the maintenance-free aluminum construction complements all types of building materials. If you're not fully acquainted with this newest Bayley development look up Bayley's Aluminum Window Catalog in Sweet's —or better yet, *write for a Bayley Catalog and full size drafting room details*

*Visioneering—*The science of coordinating vision, air and light in modern building walls with windows of advanced design.*

Bayley Visioneering Reflects 75 Years of Reliability

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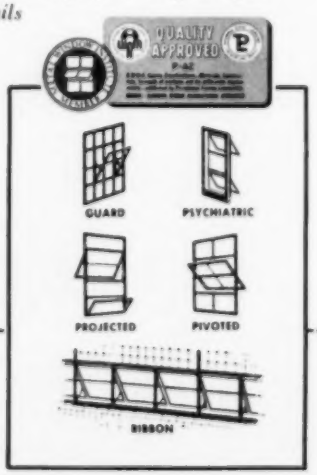

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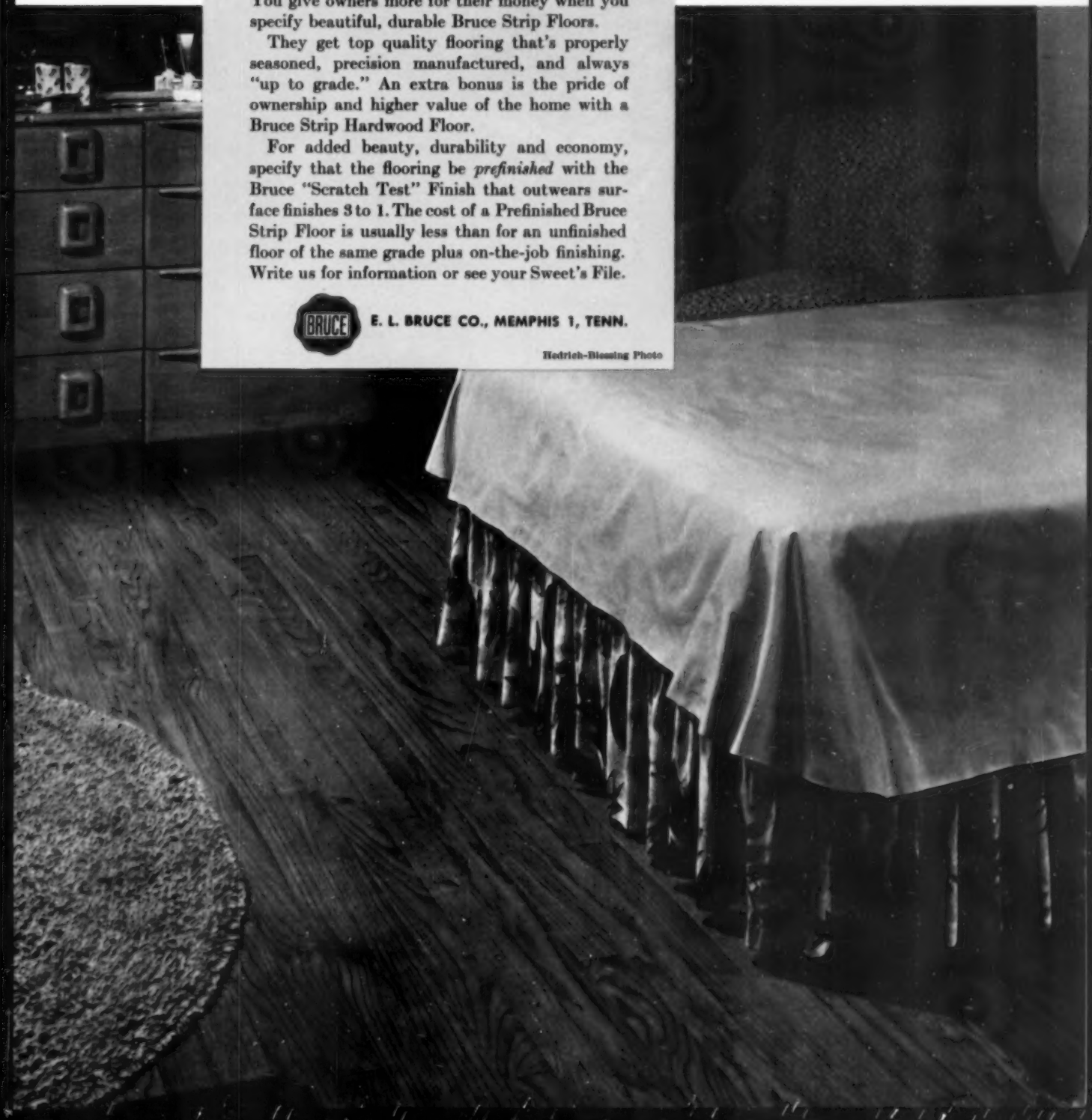

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You give owners more for their money when you specify beautiful, durable Bruce Strip Floors.

They get top quality flooring that's properly seasoned, precision manufactured, and always "up to grade." An extra bonus is the pride of ownership and higher value of the home with a Bruce Strip Hardwood Floor.

For added beauty, durability and economy, specify that the flooring be *prefinished* with the Bruce "Scratch Test" Finish that outwears surface finishes 3 to 1. The cost of a Prefinished Bruce Strip Floor is usually less than for an unfinished floor of the same grade plus on-the-job finishing. Write us for information or see your Sweet's File.

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Hedrich-Blessing Photo

New lateral force design reference

by Harry C. Plummer, Director of Engineering & Technology
Structural Clay Products Institute

and John A. Blume, Consulting Structural Engineer
San Francisco, California

Over 150 details, tables and photographs

only $4.95

timely... authoritative... complete...

This new textbook is written to meet the growing demand among architects and engineers for concise, authoritative information about structural systems which will resist tornadoes, earthquakes or bomb blast. (A recent survey shows that lateral force considerations are playing a more important role in the design of many structures.)

The book tells how to use Reinforced Brick Masonry (RBM) in lateral force design–thereby retaining the advantages of brick's wide color range, pleasing textural effects, permanence and freedom from maintenance. It contains scores of details of RBM construction in a wide variety of structures, comparative cost figures, data on the performance of both reinforced and unreinforced masonry, recommended design and construction procedures and a review of currently accepted design criteria.

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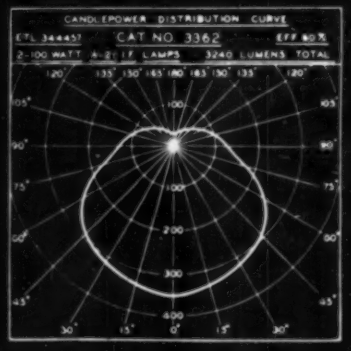


INTEGRATED DESIGN, CONSTRUCTION and PERFORMANCE

ART METAL has achieved, in this unit, a rare and original combination of incandescent lighting properties. It was designed for wide application, constructed for ease of installation, and provides exceptional efficiency coupled with visual comfort. Complete data on four sizes, 120, 150, 200 and 300 watts, is on page 47 of ART METAL catalog. We suggest you write for a copy.

THE **ART METAL** COMPANY

CLEVELAND 3, OHIO

Manufacturers of Engineered Incandescent Lighting

Q. WHAT'S THE BIG NEWS IN LIGHT CONTROL?

A. GRADATION TROPIGLAS—THE NEW VIBRIN AND GLASS-FIBER PLASTIC MATERIAL THAT GIVES LIGHT CONTROL NEVER BEFORE POSSIBLE!

What's different about Tropiglas?

Tropiglas makes possible *controlled translucence.* Through a newly discovered compounding process, Tropiglas is made in different degrees of light *transmission—without* affecting light *reflectance!*

How does it work in actual practice?

Two green Tropiglas window panels, for example, with different degrees of translucence, will appear as two different shades of green when seen by transmitted light, or from the inside of a building during the daytime. Yet from the outside, *by reflected* light, they will both appear the same color.

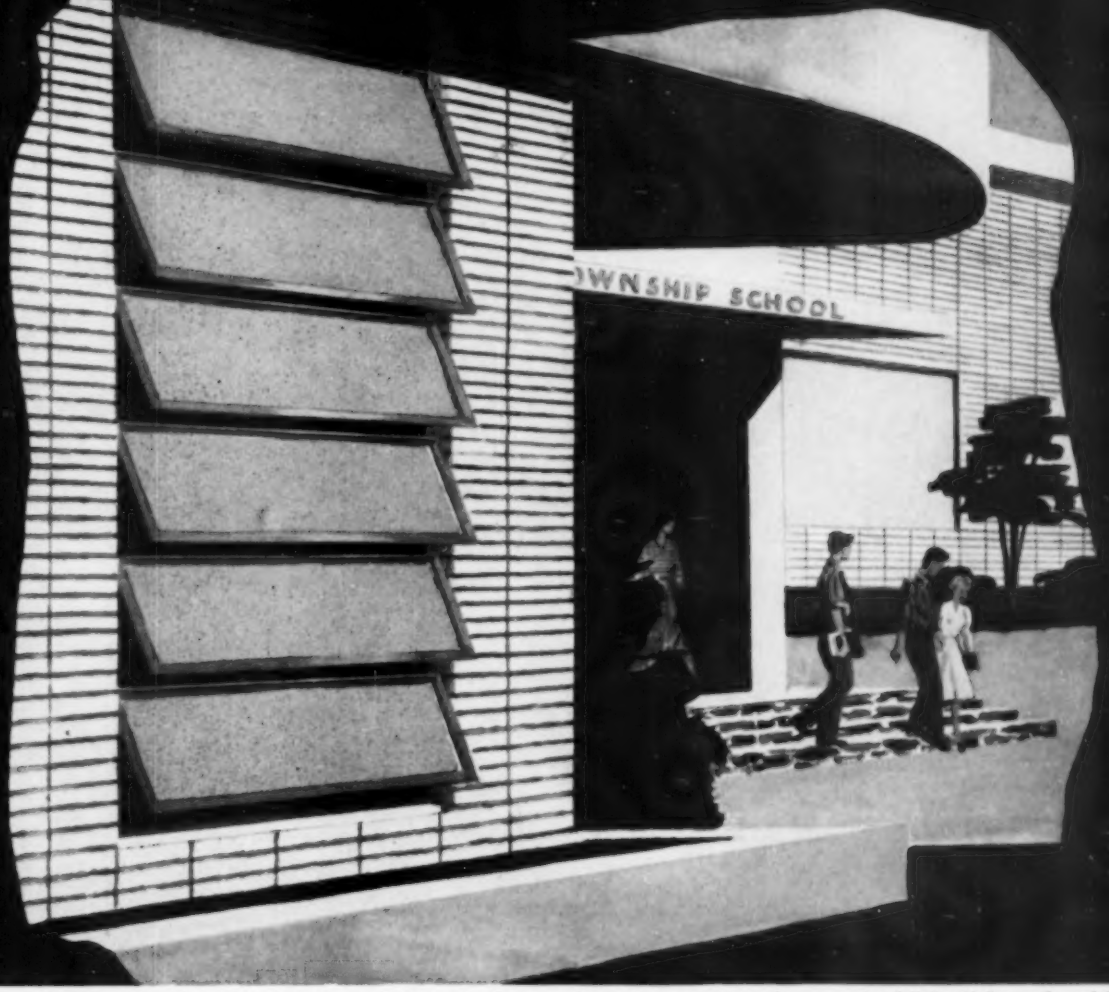
What would it look like at night?

The effect would just be reversed. Because with interior lights on, the light would be reflected from the *inside* of the panel instead of the outside.

How can I take advantage of this controlled translucence?

Possibilities are almost *unlimited.* By selecting panels of different translucencies, you can control the amount of light on ceilings, floors, working surfaces—in schools, homes, factories, hospitals, public buildings, fenestration of all kinds.

And all without the use of blinds, awnings, shades, or shutters. Other fascinating uses lie in illuminated signs and displays—greenhouses, bus shelters, carports, patios, road stands—decorative effects in interior and exterior paneling for stores, restaurants, hotel lobbies—*applications by the thousands.*



Tropiglas paneled windows by Miami Window Corp. illustrate six degrees of translucence as seen by transmitted light (left), reflected light (right)

Is Tropiglas strong?

Actually stronger than steel for its weight! Panels only 1/16" thick have withstood hurricane winds of 135 mph —even with debris hurled into the windstream!

Vibrin-based Tropiglas won't warp, rot, rust, dent, chip, or shatter. It's unharmed by extremes of heat and cold. And it weighs *40% less* than regular window panes of comparable size.

How are its diffusion properties?

Excellent. The outline of a light bulb held but a few inches away is practically indiscernible from the other side. So Tropiglas completely eliminates harsh glare. It provides soft, pleasing light-without-heat.

How about cleaning?

Tropiglas is as easy to clean as ordinary window glass.

What colors can I get it in?

Tropiglas is made in 5 standard colors—white, yellow, coral, blue, and green—each available in six different degrees of translucence (ranging from 10 to 60% depending upon color and thickness). A sixth color, honey wheat, is available in one translucency.

Where can I get more information on Tropiglas?

Write Russell Reinforced Plastics Corp., 10 S. 13th Street, Lindenhurst, N.Y., manufacturer of Tropiglas. Naugatuck Chemical produces Vibrin®—the polyester resin of which Tropiglas is made.

Naugatuck Chemical

Division of United States Rubber Company

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How Honeywell Customized
Temperature Control helps provide

The kind of "Indoor Weather" your clients need

Customized Temperature Control installation at Corning Glass Center is a good example.

AT THE Corning Glass Center in Corning, New York, you'll find a museum, offices, shops—and production areas where Steuben glassware is made.

Such a variety of functions under one roof calls for scientific temperature control—if the "indoor weather" is to be comfortable throughout the building.

Today the best way to provide proper "indoor weather"—whether a building houses one function or many—is through the use of *Honeywell Customized Temperature Control.*

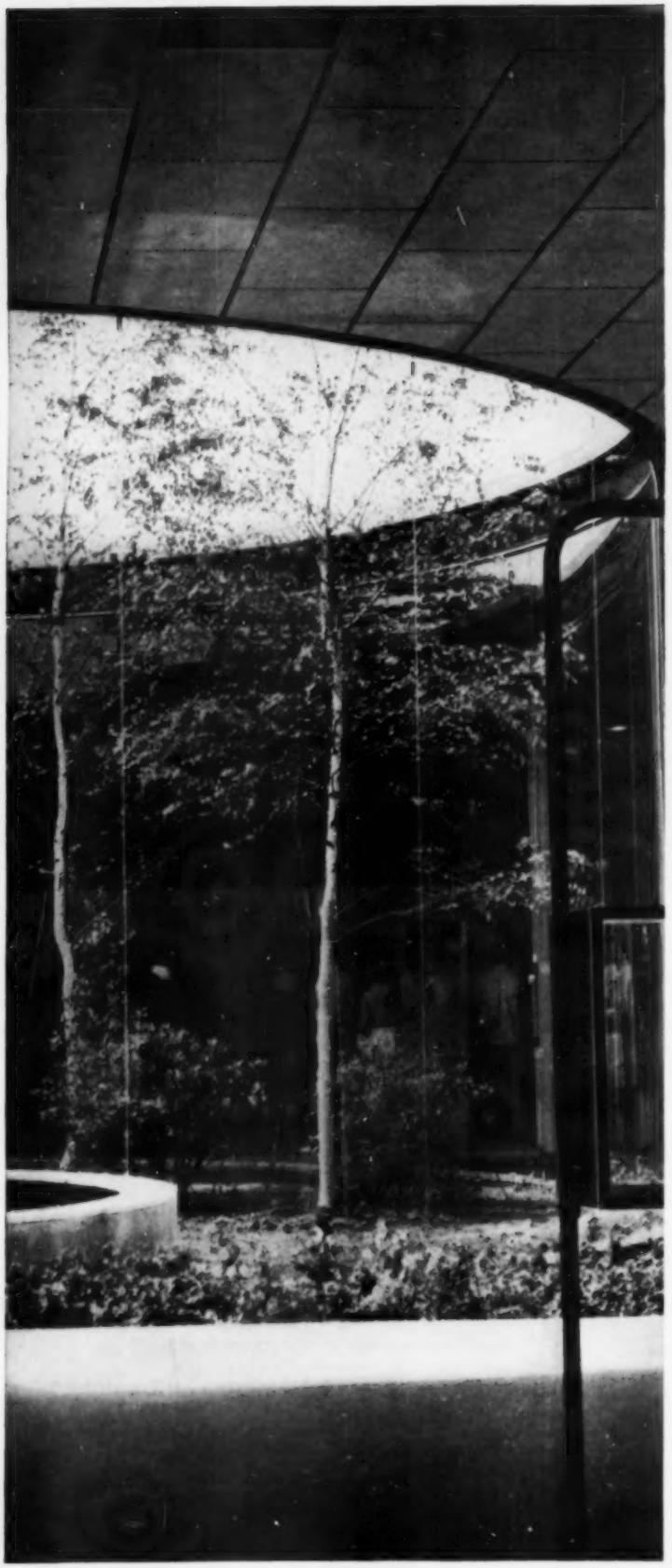
The key word here is "customized". It means that whatever your clients' control requirements, a Honeywell Customized Temperature Control installation *designed to fit the needs of the building and its occupants is your answer.* This applies not only to heating and cooling, ventilating and humidity control—but to industrial control as well.

Only Honeywell can provide true "customized" control. Because only Honeywell manufacturers all three types of controls—pneumatic, electric and electronic.

The story, in brief form, of the Honeywell Customized Temperature Control installation in the Corning Glass Center is told by the floor plan and picture captions you see here.

They tell how specific occupancy, use and exposure problems were met.

The *techniques* used, applied to your particular problems, can help you give your clients the "indoor weather" they've always wanted.

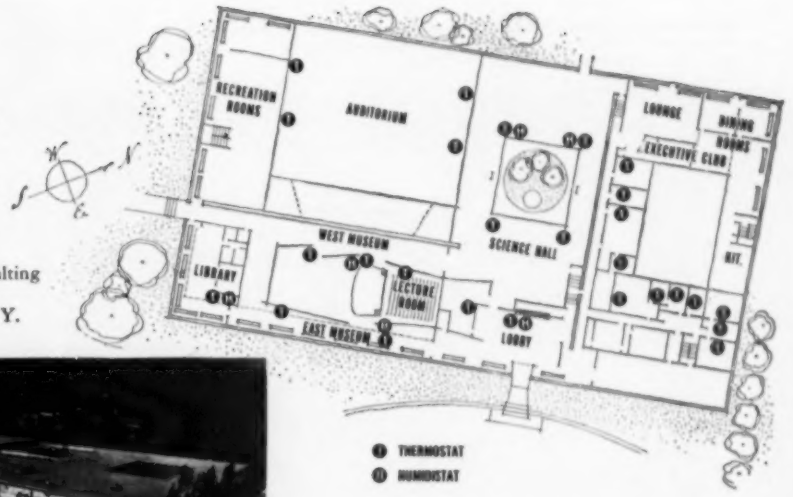


Interior garden of Corning Glass Center

Architects: Harrison & Abramovitz and Abbe, New York, N. Y.

Mechanical Consulting Engineers: Jaros, Baum & Bolles, New York, N. Y.

Air Conditioning Consulting Engineers: Henry Peck Associates, Fairport, N. Y.



This panorama of the Corning Glass Center shows the temperature control problems involved. Huge glass window areas face four directions. Whether it is sunny or cloudy makes a big difference to the heating and cooling system. But Honeywell Customized Temperature Control, using electronic and pneumatic thermostat and humidistats, keeps the building comfortable all the time.

Interior heating and cooling factors are important, too. Take the auditorium above, for instance. With a large crowd you have one heating problem. With a small group, quite another. But the four Honeywell thermostats located here handle either situation easily.

The internal heating problem in the display room above is somewhat similar to that of the auditorium. But when it is crowded (requiring little heat) the auditorium might need considerable heat. Yet with enough thermostats, strategically placed, both areas are comfortable.

For comfortable, even temperature in new or existing buildings—of any size—specify Honeywell Customized Temperature Control

Whether it's a factory, motel, hospital — any building of any size — new or existing, Honeywell Customized Temperature Control can help meet your clients' heating, ventilating, air conditioning and industrial control problems. You can give your clients more comfort and efficiency. And they'll save fuel, too.

For full facts on Honeywell Customized Temperature Control, call your local Honeywell office. Or mail the coupon today.

James M. Brown, III, director of the Corning Glass Center, says:

"Today our Glass Center is one of the most comfortable buildings in the country. Important in helping make possible this comfort is our Honeywell Customized Temperature Control installation."

MINNEAPOLIS
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First in Controls

104 OFFICES ACROSS THE NATION

Minneapolis-Honeywell Regulator Co.
Dept. PA-4-60, Minneapolis 8, Minnesota

Gentlemen:

I'm interested in learning more about Honeywell Customized Temperature Control.

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Firm Name .....

Address .....

City ..... *Zone* ..... *State* .....

This is the Mill Street School addition at Port Allegany, Pa. Architect: Raymond Viner Hall. General Contractor: Carl Ek & Sons Construction Co. Supervising Principal: Clifford V. Jones.

Reliable toplighting for deep, low ceiling classrooms

Pictured above is a panel of PC SKYTROL Glass Blocks; it illuminates this deep, low ceiling room with soft filtered daylight, allowing the economy of low ceiling construction, yet providing the best in daylight illumination.

SKYTROL blocks are flexible. They require no special orientation, and can be used in flat or curved panels of virtually any size. They are ideal for any type of school construction—in classrooms, corridors, gymnasiums and other large areas—and are equally effective in commercial and industrial buildings.

SKYTROL'S high insulation factor means low heat transfer, minimizing condensation. Yet, SKYTROL actually costs less installed and less in maintenance than comparable toplighting media. SKYTROL offers all this: excellent daylighting, high insulation-value, design flexibility and maintenance-free service. Yes, SKYTROL is a practical and reliable answer to toplighting.

For more information on SKYTROL, consult our section under "Skylights" in Sweet's, or write Dept. AC-44,

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SKYTROL*

GLASS BLOCKS

*T. M. Reg. Applied For.

Pittsburgh Corning Corporation

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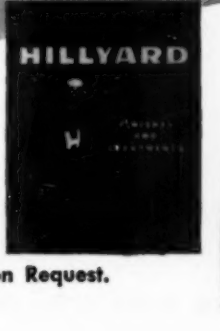

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When there's not a second to lose . . . only the **SUREST** door will do!

THE "OVERHEAD DOOR" TRADE MARK

A siren wails its banshee warning. Traffic freezes. Around the corner hurtles an ambulance, headed toward the hospital's emergency entrance. And up flashes The "Overhead Door," swiftly and dependably as always. It has done its part to save a life.

The "Overhead Door" saves time and fuel more frequently than it saves lives, but does all three with equal facility as the occasion demands.

That is why so many architects who plan hospitals and clinics specify The "Overhead Door" for emergency entrances. Its unique Miracle Wedge* construction, developed a third of a century ago, assures instant opening —weathertight closure. Over the years other pioneering improvements have kept it the leader.

Specify The "Overhead Door" for any institution, any factory or shop or home, and assure your client the best in the field. By all standards, The "Overhead Door" rates first: in design, quality, ease of operation, dependability, long life.

Call the dealer nearest you (listed in the yellow pages of your phone book under "Doors") or write for details. Our Engineering Department is at your service! * TRADE MARK

Is there a DOCTOR in your house plans?

Don't plan a doctor's home without including The "Overhead Door" with Miracle Control (*electronically operated*) for his garage! Door opens at touch of dash button; lights come on automatically. A wonderful time-and-labor-saver for nightworking M.D.'s—very modest in cost too!

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FLEETWOOD, NEW YORK
Edward Fleagle
Architect

Frank Angelilli Construction Co., Inc.
Builder

Spandrels 37" wide and 163' long are composed of Architectural Terra Cotta units approximately 21" x 24". Color is a light mottled green.

Why architectural terra cotta is on so many school boards

In versatility of form, color and texture, architectural terra cotta has no equal. Architects designing today's smart functional schools specify it widely ...for exteriors and such diversified interiors as classrooms, corridors, vestibules and swimming pools. Federal Seaboard custom-makes architectural terra cotta to your precise specifications. Units can be large or small, plain surfaces or decorative sculpture. You have an unlimited range of colors from which to choose...and their original richness and beauty can be retained indefinitely by simple soap-and-water washings. If you have a school now on your boards, write for latest data today.

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Architectural Terra Cotta and Ceramic Veneer.

FEDERAL SEABOARD TERRA COTTA CORPORATION

F S T C

10 East 40th Street, New York 16, N. Y.
PLANTS AT PERTH AMBOY AND SOUTH AMBOY, N. J.

BRIGGS beautyware

announces

a new color! two new lavatories!

BRIGGS BATHROOM FIXTURES ARE NOW AVAILABLE IN EXCITING

CORAL

Here's a bright new Briggs Beautyware color—Coral—with loads of eye-appeal and buy-appeal! It's a color that's designed to sell on sight—selected to harmonize perfectly with almost endless decorator schemes. Added to the other Briggs Beautyware pastel colors—Sandstone, Sea Green, Sky Blue—Coral gives you a selection to please any discriminating client. Once you've seen exciting new Briggs Beautyware Coral, you'll agree it's just what you—and the home-buying public—have been looking for! It's available in most Briggs models.

Here's modern styling plus a new color—designed to appeal to your most discriminating clients!

BRIGGS NOW OFFERS TWO SMARTLY STYLED FLAT-RIM LAVATORIES IN QUALITY

VITREOUS CHINA

These two new Briggs Beautyware flat-rim lavatories are designed to give a de luxe, custom-built look to any bathroom. Made of sleek vitreous china, they are especially designed to fit today's "modern-living" style trends. Both have twin concealed front overflows, a wide anti-splash rim, a wide ledge extending around the bowl, twin soap spaces and a deep bowl for maximum water capacity. They are available in white and the four Briggs Beautyware pastel colors—including the glamorous new Coral! You'll find these two new Briggs Beautyware products are ideal for filling the needs of today's quality-conscious new-home buyer—or for modernizing an older home.

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BRIGGS MANUFACTURING COMPANY, DETROIT 26, MICHIGAN

You make the plan— a CURTIS Woman-Designed kitchen will fit it!

Kitchen-laundry or kitchen-dinette—Curtis sectional wood kitchen cabinets fit beautifully into such open-plan arrangements. Styled and tested by women, these sectional cabinet units contain the 53 beauty and convenience features which women want.

Planning an "L" type kitchen? Curtis cabinet units will fit your plan like a glove. These cabinets are available with fronts of beautifully grained birch expressing the warm, friendly charm of wood. Or, if desired, cabinets come finished in white, ready for decoration in the colors of the owner's choice.

For a compact and convenient "U" type kitchen—Curtis sectional cabinets are an ideal choice. Curtis cabinets provide such modern features as swing-out and revolving shelves—sliding trays—tilting cutlery trays—pass-through units and pan storage cabinets.

Where space is limited, as in this straight wall kitchen, Curtis cabinets provide maximum storage space. With Curtis cabinets, the housewife does less stooping, less bending—everything is in easy reach. Curtis modern-design hardware is furnished.

Curtis makes a complete line of architectural woodwork and Silentite windows for homes of all types and sizes. Make your next home "all Curtis."

Facts for your file —mail the coupon!

1865 CURTIS WOODWORK

Curtis Companies Service Bureau PA-4-54
200 Curtis Building
Clinton, Iowa

Please send booklet on the new Curtis woman-designed kitchens.

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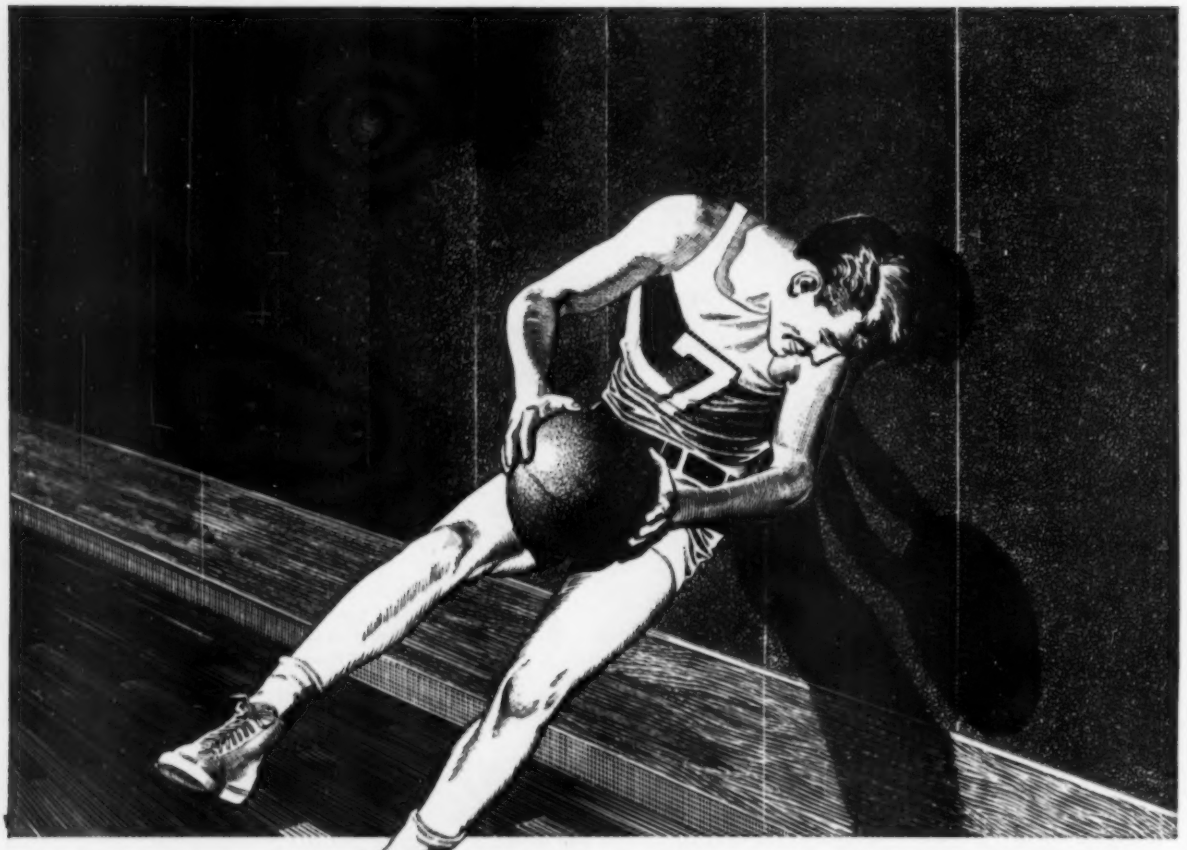
Address.....

City.....*State*.....



NEW cushion-wall cuts gym injuries!

costs little more than hard surface walls

The installation of new Spongex Safety-Cushion Wainscot sharply reduces the frequency and severity of injuries from crashes against gym walls.

Spongex Safety-Cushion Wainscot comes in resilient, shock absorbing panels . . . attractively covered with plastic sheeting . . . ready for easy installation. In new construction, its cost compares favorably with most hard surface walls.

This specialized cushion-wall was made possible through the knowledge gained by The Sponge Rubber Products Company in years of experience, designing and producing crash pads for the automotive and aircraft industries.

We would be happy to work with you in keeping injuries to a minimum in the schools and gymnasiums you design. Write us today for complete information.

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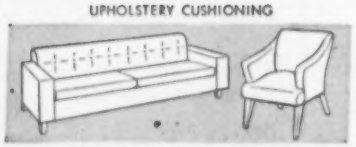
THE SPONGE RUBBER PRODUCTS COMPANY, 55 Derby Place, Shelton, Connecticut

In Canada: Canadian Sponge Rubber Products, Ltd., Waterville, Quebec

INDUSTRIAL

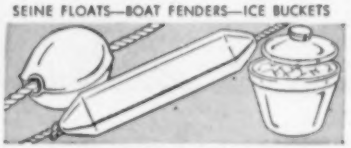
CELLULAR RUBBER

UPHOLSTERY CUSHIONING



TEXLITE RUBBERIZED HAIR—TEXFOAM

SEINE FLOATS—BOAT FENDERS—ICE BUCKETS



CELLULAR PLASTIC

CARPET CUSHION

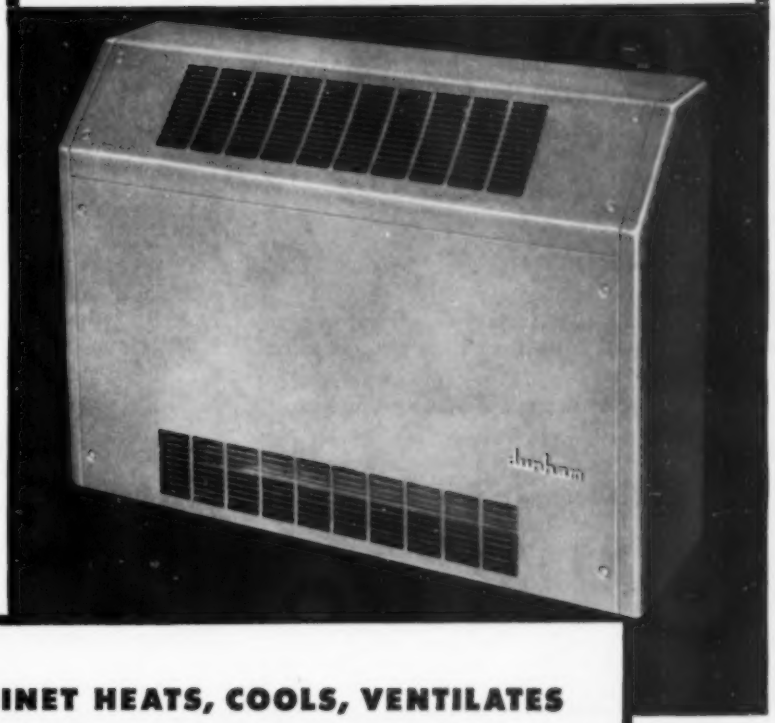
SPONGE RUBBER

"Set for silent operation"

"Easy to mount on floor, wall or ceiling"

"Uses hot and cold running water"

HERE'S THE NEW ALL-WEATHER VARI-TEMP



NEW DUNHAM CABINET HEATS, COOLS, VENTILATES TO SUIT INDIVIDUAL ROOM REQUIREMENTS

New Dunham "Vari-Temp" Cabinets now put year 'round air conditioned comfort within reach of every budget . . . and within easy reach of every room occupant. For "Vari-Temp," with twin blower fans, heats, cools, ventilates, filters and dehumidifies *on an individual room basis.*

Since there's no need for central system duct work, Dunham "Vari-Temp" costs less to install and maintain. A single riser, connected to the unit, supplies hot water for heating—chilled water for cooling. Units are also available for heating with steam coil, or heating and ventilating with non-freeze steam coil.

In addition, these handsome, compact cabinets save space. *One "Vari-Temp"* delivers the same amount of heat as *five radiators* equal to it in size!

For further information about space-saving, money-saving, room-controlled Dunham "Vari-Temp" Cabinets . . . clip and mail the coupon.

DUNHAM VARI-TEMP CABINETS

RADIATION • UNIT HEATERS • PUMPS • SPECIALTIES

QUALITY FIRST FOR FIFTY-ONE YEARS

C. A. DUNHAM COMPANY • CHICAGO • TORONTO • LONDON

C. A. DUNHAM COMPANY
Dept. PA-4, 400 W. Madison Street
Chicago 6, Illinois

Please send your "Vari-Temp" Literature.

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Company_____

Address_____

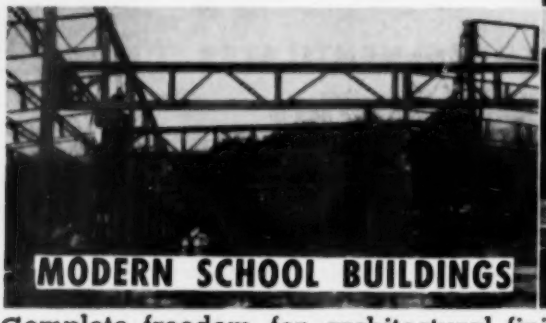
City_____ Zone____ State_____

V-LOK
—the Versatile Steel Framing

1. Designs readily into any framing plan, occupancy need or architectural effect.
2. Knocks pounds off the square foot weight and days from erection time.
3. Gets a building under cover so fast inside work is greatly accelerated.
4. Ideal for cluster type school layouts and unit module additions.
5. Engineered to Macomber standards for industrial purposes but perfect for the modern glass enclosed home.

MANUFACTURING PLANTS, WAREHOUSES

SUPERMARKETS & COMMERCIAL BLDGS.


MODERN SCHOOL BUILDINGS

INDUSTRIAL PARKING SHEDS

Complete freedom for architectural finish, mechanical layouts and floor arrangement.

Call your Macomber representative or **ORIGINATORS OF THE** *Contact us for complete information.* **OPEN WEB STEEL JOIST**

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V BAR JOISTS • LONGSPANS

BUILDING PRODUCTS
STEEL TRUSSES • STEEL DECK

MACOMBER INCORPORATED

CANTON 1, OHIO

• ENGINEERING • FABRICATING AND ERECTING •

In building for the three "R's" may we suggest a fourth one . . . . Roofs of tile?

The relationship of the modern school building to its functional purpose may not include a roofing material, but the economy of the modern school building certainly includes Ludowici Tile. To outlast the years, nothing compares with tile. To protect from many hazards, including the menace of fire, nothing equals tile. To minimize maintenance cost, no other roofing material needs less attention.

Ludowici Tile has architectural character and, aesthetically, a distinguishing beauty which tile alone possesses.

Again, may we suggest in buildings for the "3 R's", a 4th one . . . Roofs of Tile. Samples and estimates are available upon request.*

LUDOWICI-CELADON CO.

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BRANCHES: New York, New York • Dallas, Texas • Washington, D.C. • Cleveland, Ohio

Lafayette School
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New Jersey
Alfonso Alvarez, *Architect*

**These Tile roofs average less than 2% more than the total cost of the building.*

Washington School Addition
Evanston, Illinois
Perkins & Will, *Architects-Engineers*
Chicago, Illinois

Tilton Grade School
Rochelle, Illinois
Raymond Orput, *Architect*
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Start Out With an Original MEDUSA WHITE... PORTLAND CEMENT

End Up With a Masterpiece!

● Architects looking for inexpensive ways to give their work outstanding individuality should consider starting with an original—Medusa White—the first white portland cement.

For 47 years the use of Medusa White Portland Cement plain or waterproofed, white or tinted has been giving "the look of a masterpiece" to countless applications such as mortar, stucco, cast stone, cast slabs, white concrete, terrazzo or sculpture. The diamond blue-white color responsible for the achievements of Medusa White has never been surpassed in color value or dependability. Medusa White is a product of The Medusa Portland Cement Company with 60 years experience in making finer cements.

MEDUSA Portland Cement Company

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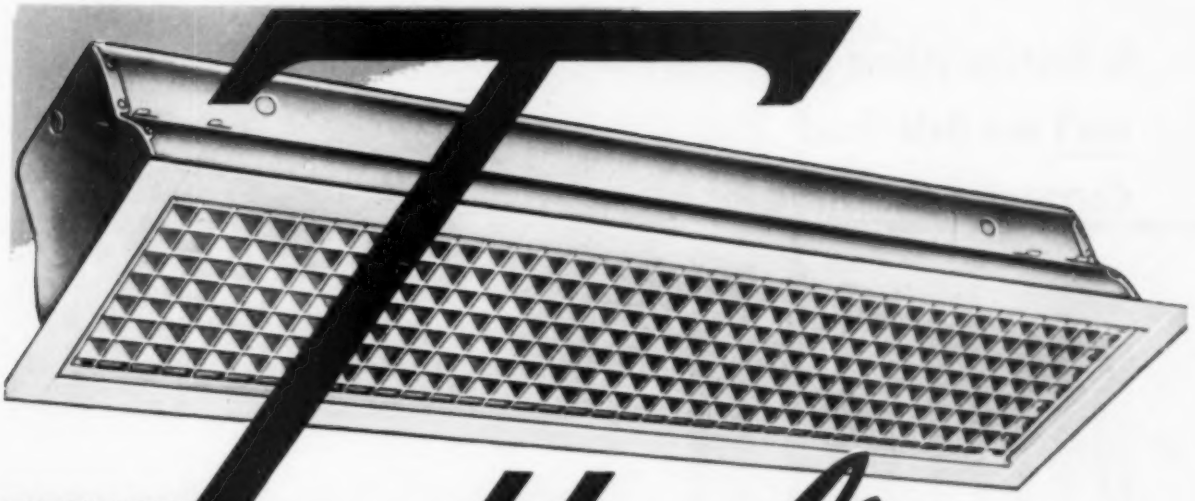
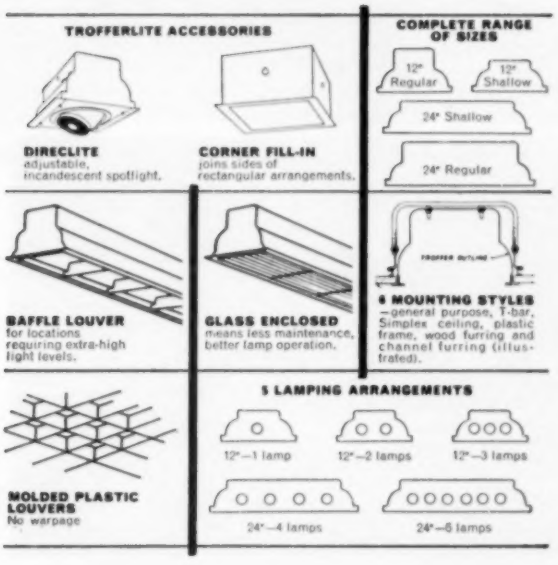
WHITE • WATERPROOFED WHITE • GRAY
WATERPROOFED GRAY • AIR ENTRAINING • HIGH EARLY STRENGTH • STONESET • BRIKSET
WHITE TILE GROUT CEMENT

MAKERS OF AMERICA'S FINEST PORTLAND CEMENTS FOR OVER SIXTY YEARS



RECESSED *Trofferlites*

for Interiors of Distinction



Versatility *plus* efficiency and distinctive appearance . . . that's *Trofferlite*. Offices, stores and commercial establishments of all kinds take on a new look of distinction with these trim, slender units which appear to be a part of the ceiling. There is no limit to the variety of designs, arrangements and architectural effects you can achieve with these recessed Troffers. They are available in a wide range of styles and sizes, in individual units or continuous rows, as shown at left.

For Interiors of Distinction, specify Versatility "*Plus*" . . . specify recessed *Trofferlites*. Complete catalog data sheets sent on request.

BENJAMIN

Exclusive licensee of the Leader Line in Canada: Robertson Irwin Limited, Hamilton, Ontario

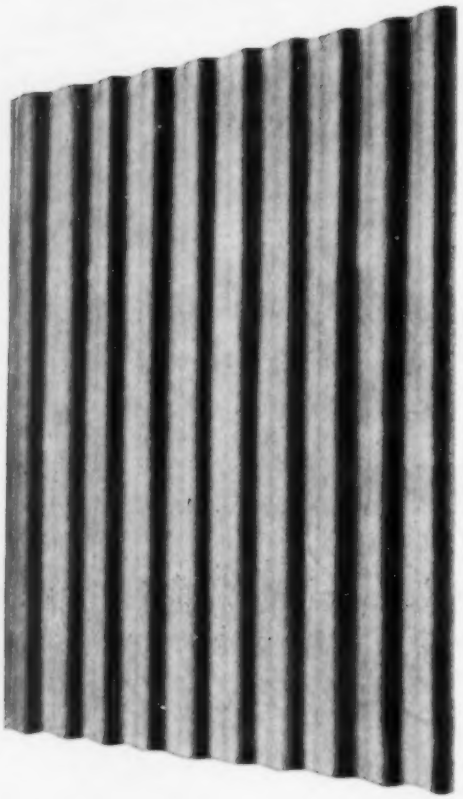
Leader Line

Sold Exclusively through Electrical Distributors

TB-273R

Benjamin Electric Mfg. Co., Leader Division, Dept. PA, Des Plaines, Illinois, also makers of famous Benjamin lighting equipment and sound signals for Industry, Institutions and Commerce.

Is there anything you can't use Gold Bond Corrugated Asbestone for?



Gold Bond Corrugated makes a rugged, weather-proof shield for this machinery shed. Construction is fast, simple!

Clean simplicity... distinctive modern design... both achieved with panels of Gold Bond Corrugated!

Gold Bond Corrugated takes this lobby "out of the ordinary." It can be painted... but never *needs* it for preservation!

GOLD BOND Corrugated does so many jobs so well, you can use it just about everyplace! It's made of asbestos and cement... ideal for industrial sidewalls and roofs. It is naturally strong, fireproof and resistant to corrosive alkalis and acids.

And because Asbestone is *corrugated*, you can achieve an almost endless variety of striking designs in industrial, commercial and residential buildings! Specify "Economy 250" for application over regular wood frame construction or heavy-duty "Standard 400," both of the same high quality as all Gold Bond Building Products. Sheets are 42" wide and 3' up to 10' in length.

Get the undivided responsibility of National Gypsum

Specify **Gold Bond** inside and out

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

This proved daylighting method opens new horizons for educators, architects and builders seeking to create the ideal environment for learning.

America's most advanced schoolroom

Twelve years of research at the Daylighting Laboratory, University of Michigan, made this "classroom of tomorrow" possible, today.

THE COMBINATION of Toplite Panels and Light-Directing Glass Block makes every previous concept of schoolroom planning, decoration and arrangement outdated. No longer is it necessary to confine close detail work to the area nearest the windows.

For example, in this experimental classroom the combination of Toplite Panels in the roof and Light-Directing Glass Block in side walls provides adequate natural illumination even on an overcast day.

The ideas perfected in this "classroom of tomorrow" are available to you, *today*. Write for the details. Address: Classroom Research, Owens-Illinois, Dept. PA-4, Box 1035, Toledo 1, Ohio.

GLASS BLOCK AND TOPLITE PANELS
TWO (O) PRODUCTS

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

POWERS *NEW* Unit Ventilator Control System

and now,

POWERS

offers another advance in

UNIT VENTILATOR TEMPERATURE CONTROL

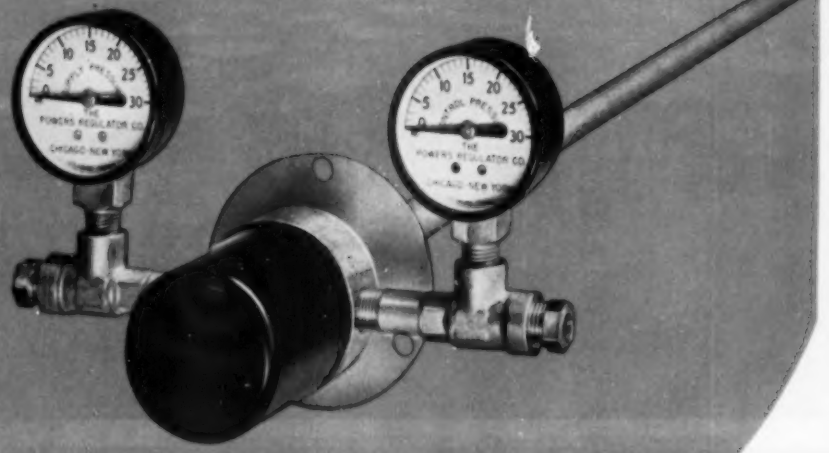
Gives More Accurate Control with LESS Maintenance

It's New!

LIMITEM

LOW-LIMIT AIRSTREAM THERMOSTAT

Compressed Air Operated



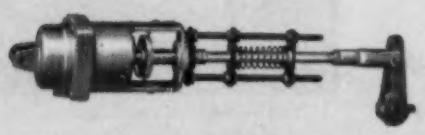
A Precision Instrument **engineered to provide control for Unit Ventilator discharge temperatures — a critical requirement for classroom comfort.**

POWERS ROOM THERMOSTATS

are truly gradual-acting and give smooth control of valves and dampers. Day-Nite Thermostats with automatic change-over are available when required.

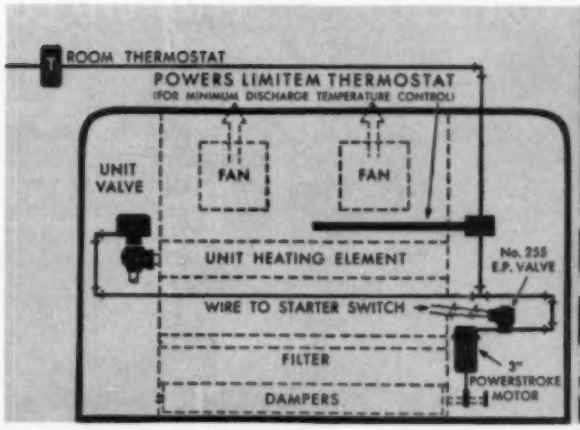
POWERSTROKE DAMPER OPERATOR

with hesitation spring gives smooth gradual operation of unit ventilator dampers.

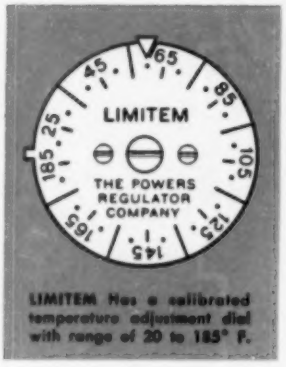


Eliminates OVER-heated Classrooms...

...INSURES UTMOST COMFORT AND FUEL ECONOMY



POWERS Temperature Control for Unit Ventilators



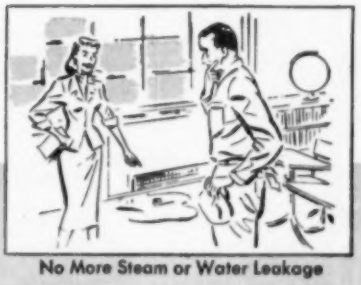
LIMITEM Has a calibrated temperature adjustment dial with range of 20 to 185° F.

... with its simple, direct control gives close regulation without using complicated auxiliary devices. Thermostats, packless valve and damper operator are all engineered to give many years of reliable, trouble free service.

New LIMITEM Thermostat is the most accurate instrument made for low-limit control of unit ventilators It incorporates such sound engineering principles as: Sturdy construction, Accurate Response, Ingenious non-bleed double air valve to insure stable control with low hysteresis and Adjustable Sensitivity to give precise throttling range.

POWERS PACKLESS Control Valves are now standard for unit ventilators and convectors. You get a really modern temperature control system when you use POWERS.

Contact your nearest Powers Office for engineering data and ask to see the new LIMITEM low-limit thermostat.

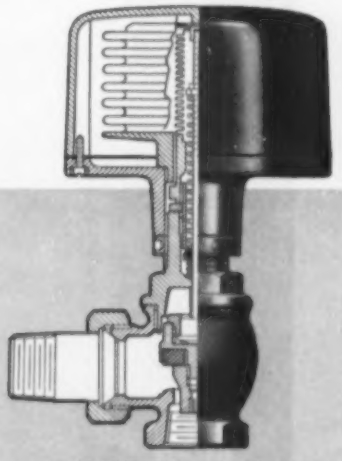


No More Steam or Water Leakage

No More Packing Maintenance

POWERS SPECIAL UNIT VENTILATOR CONTROL VALVES

Their PACKLESS construction reduces valve stem friction, eliminates packing maintenance and gives smooth control. High lift poppet provides 3 times as much travel (for a ½" valve) as compared with previous valves. Characterized throttling plug insures correct flow of steam or water over the full range of valve travel and is particularly effective at low capacity requirements—the most critical point.



POWERS Valves Are Carefully Sized for Each Unit.

THE POWERS REGULATOR CO.

Skokie, Ill. • Over Sixty Years of Automatic Temperature control

Offices in over 50 Cities in U.S.A., Canada and Mexico • See Your Phone Book

(b80)

SPECTRIM®

New Pittco Alumilite facing in colors

. . . adds new tone and texture to a building facade, store front or interior. Many of the popular Pittco mouldings, including the one shown, are now available in 6 durable, baked enamel Spectrim colors. Spectrim comes in 21-foot lengths. Your Pittco representative will be glad to show you Spectrim samples.

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

"Modernfold" doors turn a "dead" corridor into a "live" classroom

Yale High School, Yale, Michigan, saved dollars on its building budget by turning corridors into usable classroom space. When the large "Modernfold" doors are closed, area shown contains two classrooms and a dividing corridor. Open, the same area becomes one large classroom—big enough to hold large evening adult education classes.

Your ideas come to life... for life with "MODERNFOLD" doors

For every room division or door closure problem, there's a simple, economical, space-saving solution. That's "Modernfold," the original folding door.

Specifying "Modernfold" doors keeps clients happy. For these steel framed, vinyl-covered doors can't be equaled *anywhere* for quality of design . . . for quality and strength of materials.

And because this line is *complete*, you're sure to save time and get exactly what you want when you specify better looking, easier operating, longer lasting "Modernfold" doors.

Sold and Serviced Nationally

NEW CASTLE PRODUCTS, INC., NEW CASTLE, IND.

In Canada:
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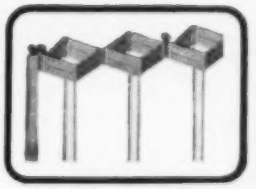
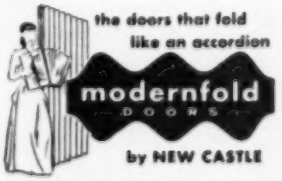
Better Looking
Fabric covering conceals all operating mechanism. No cornice needed. Adjustable trolleys keep doors hanging flush to jamb.



Longer Lasting
Balanced hinge construction both top and bottom. Trolleys attached at hinge intersections. No sidewise twist or pull possible.

Better Background
Over 100,000 "Modernfold" doors now in operation—a backlog of space engineering experience that's your guarantee of satisfaction.

YOU CAN'T GET MORE IN A FOLDING DOOR



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☐ Please send full details on "Modernfold" doors.

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City.....*County*.....*State*.....

IMPROVED DESIGN!
WIDER RANGE!
SPENCER
TYPE "C"
SPENCER "C" BOILERS
For Larger Homes, Motels, Schools, Churches, Apartments
Commercial and Industrial Buildings
Capacity Range: 1100 to 5000 sq. ft. steam net rating
1760 to 8000 sq. ft. water net rating

SPENCER'S

POPULAR "C" BOILERS NOW OFFER NEW FEATURES ... NEW SIZES ... MORE ATTRACTIVE PRICES!

Now, the most popular series in Spencer's quality line of boilers is available for a wider range of jobs ... and at more attractive prices.

Improved design now makes this outstanding boiler available with standard 15" base or extra base heights, at nominal charge, for special fuel-burning installations. Four new larger models, with heavy 3" fire tubes, have been added to the line, providing greater range in application.

Here are some of the outstanding features of the Spencer "C" Boilers: water-cooled, precision-ground flue and fire-door frames, equipped with heavy cast-iron insulated doors; extra-heavy steel-plate smokeboxes; staggered boiler tubes for rapid heat transfer; service water-heating coils in many capacities.

Entire boiler line available with attractive standard jackets, insulated with glass wool, with beautiful blue-gray hammerloy finish.

Any fuel can be fired in the Spencer "C" Boilers. Easily and quickly converted from hand to automatic firing.

For any job—residential, industrial or commercial—requiring 1100 to 5000-sq.-ft. net load steam, low pressure, specify one of Spencer's "C" Series. *Save dollars and provide the highest quality heating plant available.*

SPENCER HEATER
LYCOMING DIVISION
WILLIAMSPORT AVCO PENNSYLVANIA

Spencer Heaters—Dept. PA-44
Lycoming Division
AVCO Manufacturing Corp.
Williamsport, Pennsylvania

Dear Sirs:

Please send additional information and specifications on the new Spencer "C" Series Boilers to:

Name_____

Position_____

Company_____

Address_____

City_____ Zone_____ State_____

Homeward bound...at 60 per!

● Talk about tests . . . here's a real measure of Von Duprin quality and performance! In constant use thousands of times a day and subject to the roughest kind of treatment . . . yet giving unfailing service in schools and colleges across the country, day after day, year in and year out. Many Von Duprin Exit Devices have been in operation for more than 40 years, requiring only normal maintenance in all that time.

In buildings you design, remodel or equip, always insist on Von Duprin Exit Devices . . . a complete range of styles, models and auxiliary items to meet any installation requirement. For complete information and expert counsel, call in your Von Duprin "Exit Specialist" or write direct to the factory.

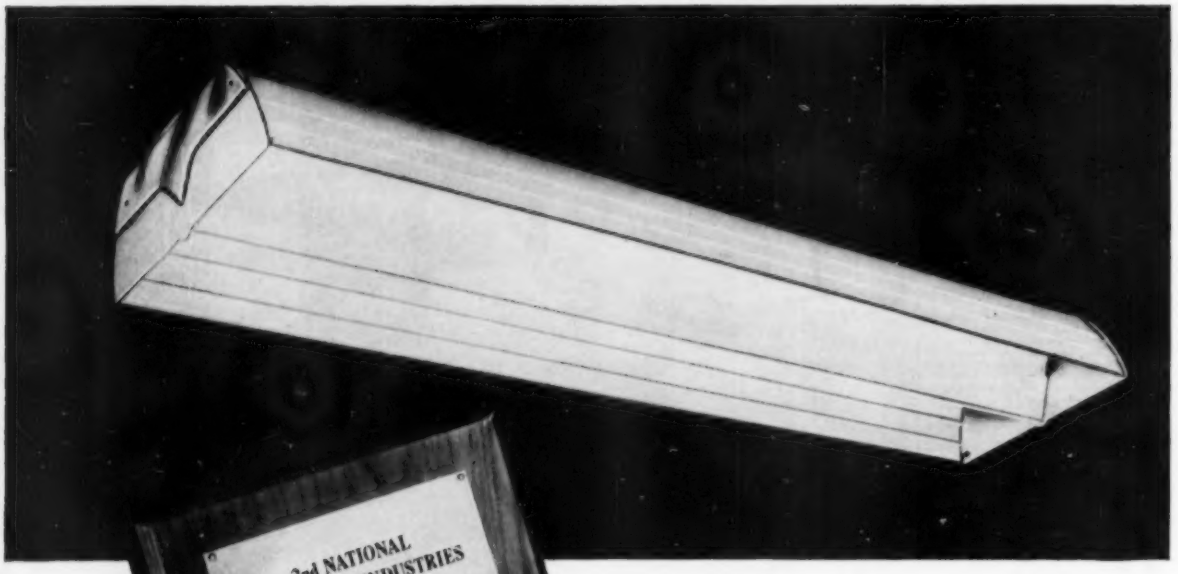
VONNEGUT HARDWARE CO., VON DUPRIN DIVISION • 402 W. MARYLAND, INDIANAPOLIS 9, INDIANA

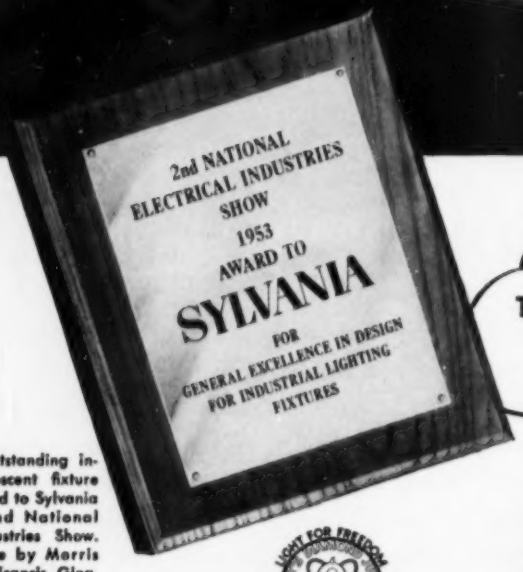
Von Duprin

Fire and Panic Exit Devices

FOR "THE SAFE WAY OUT!"

ARCHITECTS! Specify Sylvania... the award-winning fluorescent fixture!





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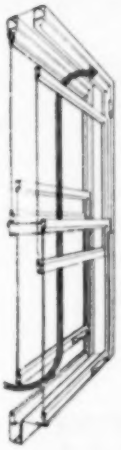

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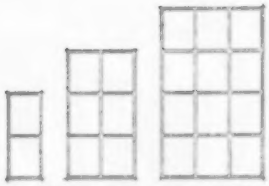

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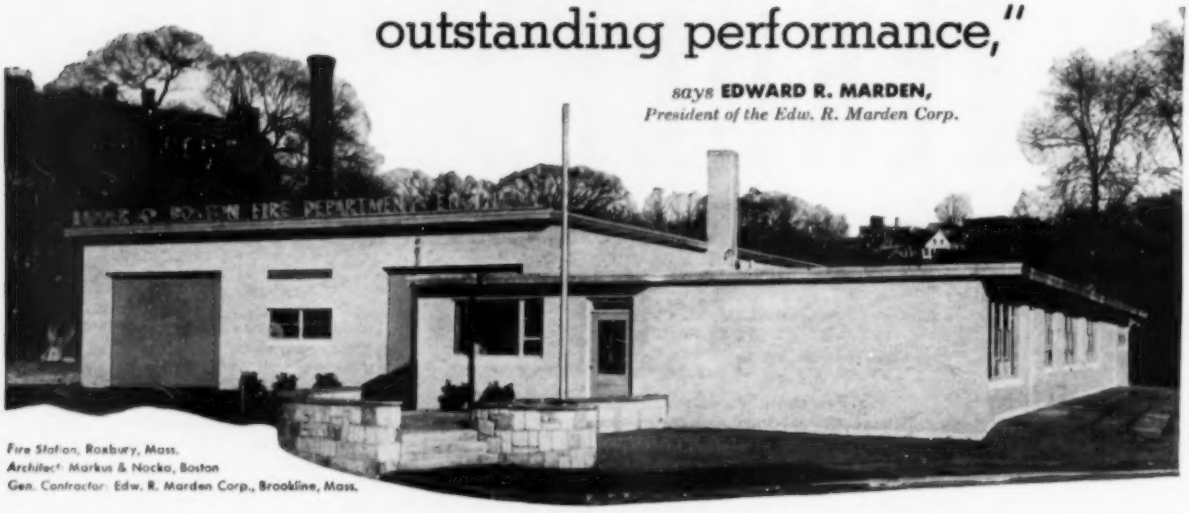

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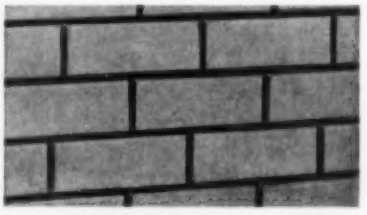

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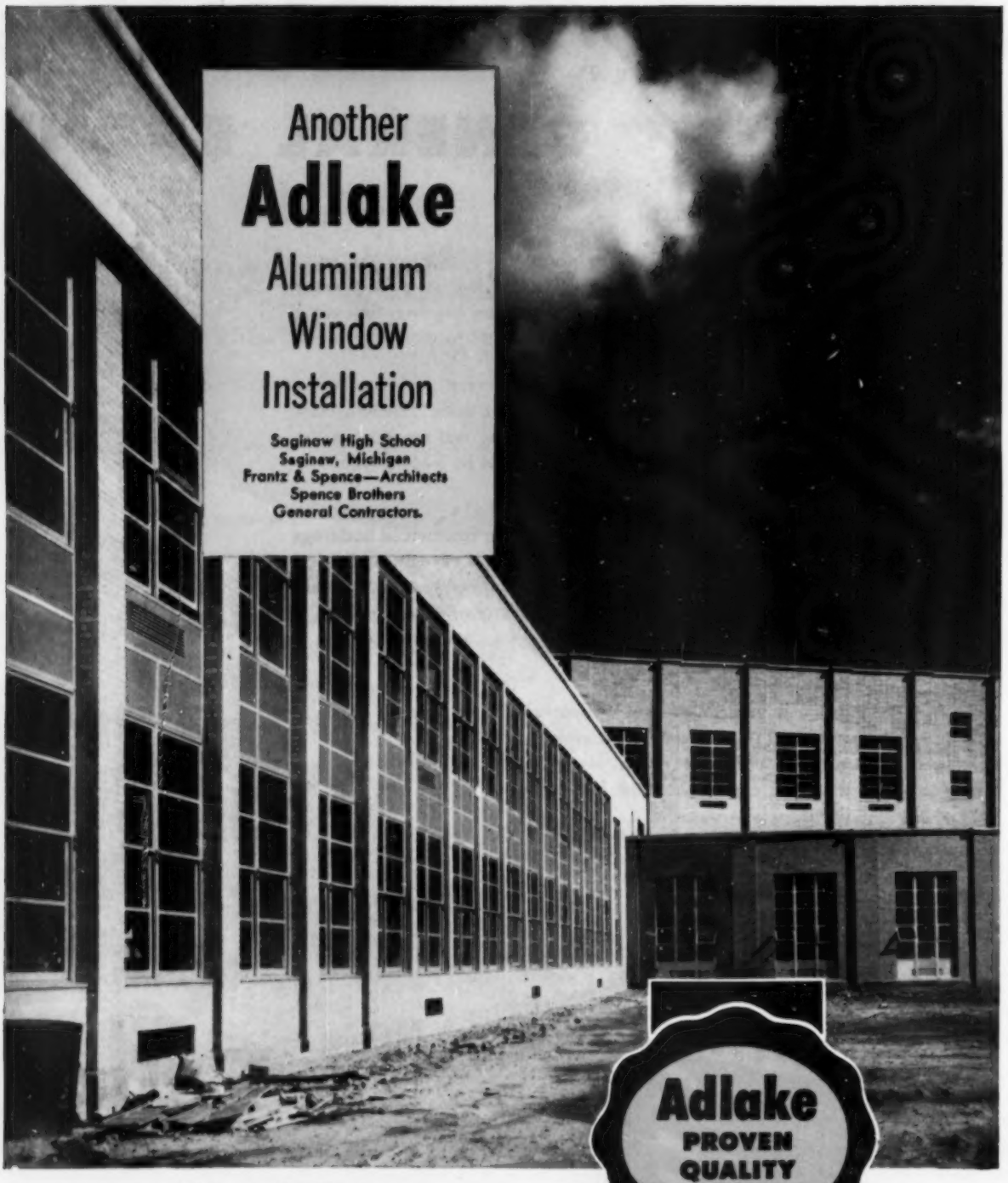

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production schedules—a necessity

by Siegmund Spiegel*

If an office is to remain relatively successful financially, means must be found to control the Direct Production Cost as well as Overhead. Overhead has been discussed in an earlier article (February 1954 P/A). The control of Direct Cost refers especially to drafting salaries, by far the largest item of an architect's expense. Although there is no perfect way of establishing beforehand the cost at which a drawing or a complete job can be produced, and since this varies from job to job in any case, ways must be found nevertheless to control drafting costs, without depriving the individual job and the client of the maximum amount of competent professional services. One means of accomplishing this may be through proper scheduling of jobs.

While the term "scheduling" can imply near mechanization and/or standardization which, especially in architecture, should be avoided, scheduling has proven to be of utmost help in controlling manpower and thereby costs.

advantages of scheduling

Scheduling can be important because it:

determines the number of men needed and when

determines space requirements

determines funds needed for certain periods

helps establish priorities for individual jobs

Furthermore, by scheduling strategically—and in fairness to all clients—completion of certain phases of individual jobs, involving payments to himself, the architect will assure incomes at anticipated times. This, in turn, will help greatly to maintain office operation on a sound basis.

It is to be borne in mind, however, that during the period in which programming, studies, sketches, and early preliminary drawings for a project are made, time cannot be scheduled to the extent shown below for working drawings. The period of "preliminaries" in which creative architecture in the primary sense is developed should not be held to a strict number of man hours, but rather, if at all possible, to a calendar date. (A leeway of some time and money will enable completion of this stage to the architect's own satisfaction and will give the client the professional service he has sought; furthermore, it will save money later when working drawings are made.) However, at the conclusion of this planning period, during which time the engineering and other consultants (if any) should have participated creatively to whatever extent necessary, the design should be finalized, and approved by the client. Too often, money is lost by the architect (and, in turn, his consultants) in making design changes in the costly working drawing or production stage.

scheduling individual jobs

Before an over-all Production Schedule can be worked out, taking account of all work in the office, each job should be analyzed and an individual job schedule should be worked out. In the case of most government — and some private-client contracts, the date for completion of the drawings is made part of the contract. Although this stipulated date of completion may more often than not seem hard to meet, it is actually of great assistance to the architect, insofar as it enables him to ascertain his manpower requirements pretty accurately. In the case of commissions where no definite "deadlines" are predetermined, the architect would do well to analyze the job in concert with all consultants who may be involved, and make as realistic an estimate as possible of production time required. This self-set deadline should then be adhered to as strictly as one stipulated in a contract. A job with vaguely scheduled completion dates will inevitably be more costly to produce. This is so because the calendar does not have to be watched; there are certain to be delays in completing drawings due to men being taken off and on the job, thereby causing an excessive amount of lost motion; prints are likely to be sent to structural and mechanical engineers for their part of the work at a time when they will not be able to fit it in with *their* schedule, which in turn will cause delays in the architect's office.

Merely being aware of a due date for a job is not sufficient, of course. Unless the job production is checked at intermittent stages as to relative percentage of completion and is kept in relative proportion to the over-all time limit, offices will continue to find their staffs working the proverbial last minute "charettes." Costs, too, must be checked intermittently and effort must be made to keep them in proportion to the over-all budget.

In the case of a number of jobs which had close contractual completion dates, and involved numerous consultants, the following procedure was followed, and proved to work well. All consultants were informed of the scope of their services and the dates of submission before the contract with the client was signed. They were queried as to when they must have certain basic drawings from the architect or from the other consultants involved, in order to be able to finish their work and return it to the architect for further checking and correlation prior to the due dates. The dates so worked out with the consultants were noted on a

* *Architect, Office Manager for Mayer & Whittlesey, Architects, New York, N. Y.*

schedule which showed all dates, the number of working days for each item to be completed by architect, items to be sent and to whom, and other steps in coordination. Then it became relatively simple to schedule the architectural part of the work. The number and type of architectural men required to complete the work was determined and their names applied opposite the item of work they were to handle in that period. It was found extremely useful and fair to the draftsmen involved to inform them what was expected of them, and by what date their particular drawings had to be completed.

On jobs involving a dozen or more men, where the work of several men often hinges on the completion of a basic drawing by one man, advance scheduling frequently is a tedious job. But, if work for the entire project is analyzed and laid out well in advance, there should be only a minimum of wasted man hours. Nothing is so demoralizing in a drafting room as a condition in which the majority of men work at a steady pace, while others have to kill time for lack of enough work being prepared for them on time.

OFFICE PRODUCTION SCHEDULE Date:_____

1. List names of all men in office.
2. List all jobs in office, as follows:

job	estimated time to completion	no. of men required	type
#301 (or job name)	6 weeks	3	1 Senior 2 Interm.
#302	From 2/8/54— 2 weeks	1	1 Interm.
#303	From 1/25/54—12 weeks	4	2 Senior 1 Interm. 1 Junior
#304	4 weeks (through week of 1/18	2	1 Senior 1 Junior

etc.

3. Combine 1 and 2 above, by listing men and work-weeks, and jobs on which the men are scheduled to work, as follows:

week of	(name)	(name)	(name)	(name)	(name)	etc.
1/18/54	#301	301	301	304	304	
1/25/54	#301	301	301	303	303	
2/1/54	#301	301	301	303	303	
2/8/54	#302	303	303	303	303	
2/15/54	#302	303	303	303	303	

etc.

over-all production schedule

A problem frequently confronting the architect, when a job is finished and a number of men become available on a certain day, is to have sufficient *other* work prepared to utilize these men advantageously. This requires a frequent analysis of *all* work in the office.

The average office will occasionally have small jobs which may not require more than one or two men, and only for a limited number of days or even hours, possibly only for intermittent periods. Having at hand individual production schedules for major jobs, and a detailed listing of work falling in the category of minor jobs, the over-all analysis may well determine that additional manpower is required—or, on the contrary, that some men are to be given notice.

Every office may have its own way of setting up an over-all Production Schedule. However, the following examples will serve for the purpose of illustrating the points discussed.

The schedule should, of course, remain flexible enough to permit variations due to sudden priorities which may arise from time to time. The over-all schedule should be reviewed frequently and should itemize work by job assignment for at least three or four weeks ahead (preferably more) for each individual employed. However, when certain jobs are nearing completion and the volume of work decreases, this schedule may have to be consulted more frequently in order that at least two weeks notice may be given a man slated for release. By checking on manpower requirements in time, payment of salaries for time which is not being used productively may be avoided. It can be poor management, as well as unfair to the men, to release them instantly when no immediate production work is available. Every office will encounter slack periods of minor duration, especially before pending jobs receive the "go ahead." If an office has prospects for work in the near future, men not needed instantly for production work can be used effectively to do work on presentation drawings for publicity brochures, etc. Providing the slack period is not too long, the latter procedure will be beneficial in two ways:

1. It will give the men a feeling of relative security and fair treatment, and
2. It will assure that the office has properly trained men available when production work is resumed.

If the volume of work in the office should require taking on additional personnel, one obviously must consider in advance the type and proportion of men needed. While nearly every office has need for men of the three categories commonly known as "Senior," "Intermediate," and "Junior," there is no formula as to the proportion of each group. Trying to do a job with a large number of lower paid men will generally require excessive supervision and checking, and may tie up one or more senior men who might otherwise be doing more productive work. The individual character of the projects at hand are the determining factor as to the ratio for each, and the needs for each job ahead can be determined only by scheduling.

so you want to build . . . (on television)

by Patricia Swank

The seal of the American Institute of Architects faded, and the camera moved into a living room set, pausing long enough to establish the figure of a woman, sitting on a sofa and flipping through a pile of magazines. She was glancing restlessly at her husband, seated opposite, reading a newspaper. When she spoke, everyone in the Dallas area who was watching his television set that April Sunday afternoon in 1952, felt at home. Her problem was universal. She wanted a house. She maintained, over her husband's objection, that they *could* afford an architect. This was the first scene of "So You Want to Build," a 13-week TV series planned by the Dallas, Texas, Chapter of AIA, and presented by Dallas Station WFAA-TV, television service of the *Dallas Morning News*.

"So You Want to Build" was the result of the Dallas AIA members' question to themselves: "How can we show people what architects can and should do for them in meeting their home needs?" The answer seemed obvious—the best way to show what an architect does is to put a camera on him while he does it. There is no profession whose work is more visual. Fortunately, the station's program director thought so too, and wanted to begin almost at once. We outlined a series of 13 half-hour shows which would cover the design of a house in detail.

Quickly, we created a family — a Dr. Morgan and his wife (and two children who were never seen) and rounded up an architect and an assistant for him (Ralph Bryan, and Louis Fuertes—both Chapter members and both theater enthusiasts). A former radio actor took the part of the doctor, and I, wife to one architect and executive secretary to the Dallas Chapter, played the role of Mrs. Morgan. We did not use a script, but the cast worked together for a total of about four hours each week, in addition to the final rehearsals. I wrote the announcer's copy and prepared a weekly outline.

The scenes included such episodes as discussion of fees, program, and site (in the architect's office); discussion of preliminary schemes, furniture arrangement, and so on (in the Morgans' home). One scene was concerned with selection of materials; one had a landscape architect as guest; another discussed heating systems. The final scene centered around a model of the house.

We knew, from the first, that a real house would have to be designed on the show, as it would be both obvious and dishonest to set up a real architectural problem and then fake a solution. Angus Wynne of the American Home Realty Company let us choose a lot in his new development, Wynnewood North, and it was there that the house designed on the program was constructed almost a year later (*photo above*). When it was exhibited as a model home, with emphasis on the value of architectural services, attendance pushed 100,000 in two weeks.

The things that were right about "So You Want to Build" were very right. Primarily it put a working architect into the living room, so to speak, of a great many people who did not even know how to pronounce the word. The things that were wrong about the program, due mainly to our inexperience, might well provide valuable lessons for others.

Our show was never sponsored, because a reorganization of the station, just after our series started, presented difficulties in selling it. Ideally, such a show is a package promotion, and should be so considered. A clear outline of the entire series will help your station sell it, and they will welcome your suggestions as to possible sponsors.

If the house is to be built, it will give your series greater impact if the two can be finished very nearly together. Be clear about a final plan before the series begins.

We feel that even at much greater cost and labor, the effort would have been worth while. The Dallas Chapter is convinced that the kind of education the profession has to do may be slow, but must be broad and constant. The series and the subsequent exhibition of the house designed in its course were a big step for us. We hope others will try it.

Discussing the house designed on the Dallas Chapter's "So You Want to Build" program are: seated left to right, Herschel Fisher, Chapter President; Norman Crittenden, Secretary; standing, left to right, Enslie O. Oglesby, Jr., co-ordinating architect; William H. Hidell, Chapter Vice-president.

Photos: Hence Griffith
Dallas Times Herald

Bernard Tomson

it's the law

The field of zoning legislation is relatively new and is understandably suffering from growing pains. A discussion of some basic applicable rules is therefore useful. In each state there has been created a body called a Board of Zoning Appeals (in some states it is referred to as either a Board of Adjustment or a Board of Review), whose primary function is to weigh and evaluate questions of fact relating to the use of property within its jurisdiction.

The powers of the Board are circumscribed and confined within the framework of the law governing zoning. Its basic consideration is in the maintenance of such a system of zoning as will best serve the interests of the community as a whole.

A New York Court, in *Van Auken* v. *Kimmey*, 141 Misc. Rep. 105, 252 N.Y.S. 329, expressed the considerations of the Board of Appeals as follows:

"Zoning Ordinances are not intended to be and cannot long continue to be mere straitjackets to be applied and held rigid by pure bureaucratic authority. The letter of the ordinance must yield, in instances of extreme hardship, and according to conditions of irrepressible growth and development. Properly administered, zoning ordinances do not destroy but add to values; arbitrarily administered or adopted, without regard to the proper limits of police power, they can become instruments of hardship and tyranny which can only be relieved by multitudinous applications to the court. The final determination of the proper application of the rules as adopted ought not to be left to the final determination of an administrative officer, but a citizen aggrieved should have opportunity to appeal to a quasi judicial body with power to view and study the situation, whose determination, in the absence of bad faith or abuse of discretion, would rarely be disturbed upon review by a court."

The function of the Board is, therefore, to provide a measure of flexibility in the application of general rules imposed for the public welfare and to interpose when the circumstances indicate that a serious injustice would be done by an exercise of the general rule and it should grant relief in those cases where justice requires it.

The Board may be called upon from time to time to interpret various provisions of an ordinance, as well as consider applications for exceptions as specifically provided for in the ordinance.

By far the greatest portion of the Board's time is in the granting of variances. The difference between a variance and an exception is that, in the former, it is necessary for the applicant to show hardship, while in the latter, it is not.

The Board, in considering whether a variance should be granted, weighs the particular hardship against the equities, that is to say, the modification or adjustment must be in harmony with the general purpose of the ordinance and must not interfere with the rights of other property owners.

Any general hardship which may develop by reason of a zoning ordinance cannot be relieved by the Board, which is an administrative agency carrying out policies within the framework of the definite standards as prescribed by the ordinance. The Board, not being a legislative body, may only remedy a special hardship upon a showing that the restriction will cause the particular individual a hardship with respect to a specific parcel of property; that it is special, peculiar, and unique.

The mere fact that an applicant will suffer financial hardship is, standing alone, insufficient grounds for the granting of a variance. A property owner's objection that his property cannot be put to its most profitable use or that the value of the land has depreciated, are not considered the proper criteria in determining "unnecessary hardship" (*Welton* v. *Hamilton*, 344 Ill. 82, 176 N.E. 333).

The hardship must not be caused by acts of the applicant. For example, in *Cohen* v. *Rosedale*, 120 Misc. 416, 199 N.Y.S.4, 206 A.D. 681, 199 N.Y.S.915, aff'd. 211 A.D. 812, 206 N.Y.S.893, the Court denied relief to a property owner who began to erect a building in violation of a restrictive covenant in the deed, even though erection had begun prior to the adoption of the zoning ordinance which prohibited the erection of such buildings.

In some instances, the variance will be denied even where there was a peculiar hardship established. If the Board ascertains that the granting of a variance will cause injury to other properties or adversely affect the essential character of the neighborhood, it will deny relief.

The authority to vary the provisions of the ordinance must, for the most part, be sparingly exercised. Any departure from the provisions must be prompted by substantial compelling reasons. Once the Board exceeds its properly delegated powers, it is, in effect, exercising legislative functions under the guise of a variance.

The Boards today are recognized as being absolutely necessary for the safe operation of a zoning plan. As the Court, in *Van Auken* v. *Kimmey*, *supra*, declared:

"It is the safety valve of the zoning plan. A zoning ordinance, like a steam boiler, will sooner or later blow up if there is no safety valve. Where there is a functioning Board of Appeals to which every aggrieved applicant for a permit may resort, litigation automatically assumes the form of a court review of the discretion of the board, instead of out and out attacks on the constitutionality of specific instances of regulation. . . . Where there is no Board of Appeals, instances are sure to arise which the courts must under the law declare unreasonable and arbitrary and therefore void."

CHANGING EDUCATIONAL GOALS

There have been successive "revolutions" in the design of schools since Horace Mann's theories first affected 19th-Century planning—through the work of Strayer, of Ittner, of D. H. Perkins, and others, to the freedom of expression in the early experimental schools of Lescaze and Neutra, to the now-common open and friendly buildings of Kump, of Perkins & Will, and the many other good architects producing good schools. In recent years the *program* seems to have been relatively frozen and accepted, the chief argument and controversy having centered around technical problems of light, ventilation, and the use of materials in the classroom. Now once more, changing times are producing new problems and new solutions.

The changes?

1. A fuller realization of the *total education of the individual* as a citizen—the relationship of each stage in education to those before and after.

2. A fuller realization of the *total education of the community*—belief that the hope of the world rests on an enlightened society.

As the community thus brings *more persons to the school* and the school brings *more breadth to the person,* each school's program must be studied for its place in and its relationship to the whole educational picture. For instance, this issue of PROGRESSIVE ARCHITECTURE indicates how the two changes listed above affect the designs presented:

The elementary school, which not only is now planned for close and informal teacher-student relationship but also invites the community to its doors;

The boarding school, which realizes its special opportunities for full relationship of daily living to daily learning;

The high school, which is planned either as a specialized culmination of a certain phase of formal education, or as a transition in environment as well as in subject matter between primary school and college;

The college, where liberal-arts education can be made another transition to the specialized schools that lawyers, doctors, *architects,* and others must have; and

The adult educational facility, which proves that all learning is now a step to further learning, whether it be through the university extension course or in a specialized unit such as an *art workshop.*

Among the heartening architectural results are the individual design expressions being worked out to serve the changing and growing educational programs. These are today's schools.

for technical training

type	technical high school
location	San Jose, California
architect	Ernest J. Kump
associate architects	James D. Fessenden and Delp W. Johnson
associate engineer	Eric Moorehead
general contractor	O. E. Anderson

Along the south walls of the steel-framed buildings are up-sloping, cantilevered roofs forming protected, outdoor corridors; joining the units are covered walkways

Photos: Roger Sturtevant

Though the full plot plan (*below*) shows a greatly expanded, eventual Junior College campus (detailed program for this future scheme is yet to be developed), the units indicated in black constitute the technical high school presented on these pages. The school, accommodating about 500 students in a terminal vocational education program for grades 9 to 12, is made up of three rows of workshop-instruction units and—to the northeast—a separate gymnasium-locker room building.

An important part of the design thesis was that the buildings should echo actual factory or shop conditions—if not actually look like their more mundane counterparts. "A technical high school with the gloves off," the architects call it, "dedicated to providing a real industrial slant to the training given to the potential community builders of tomorrow."

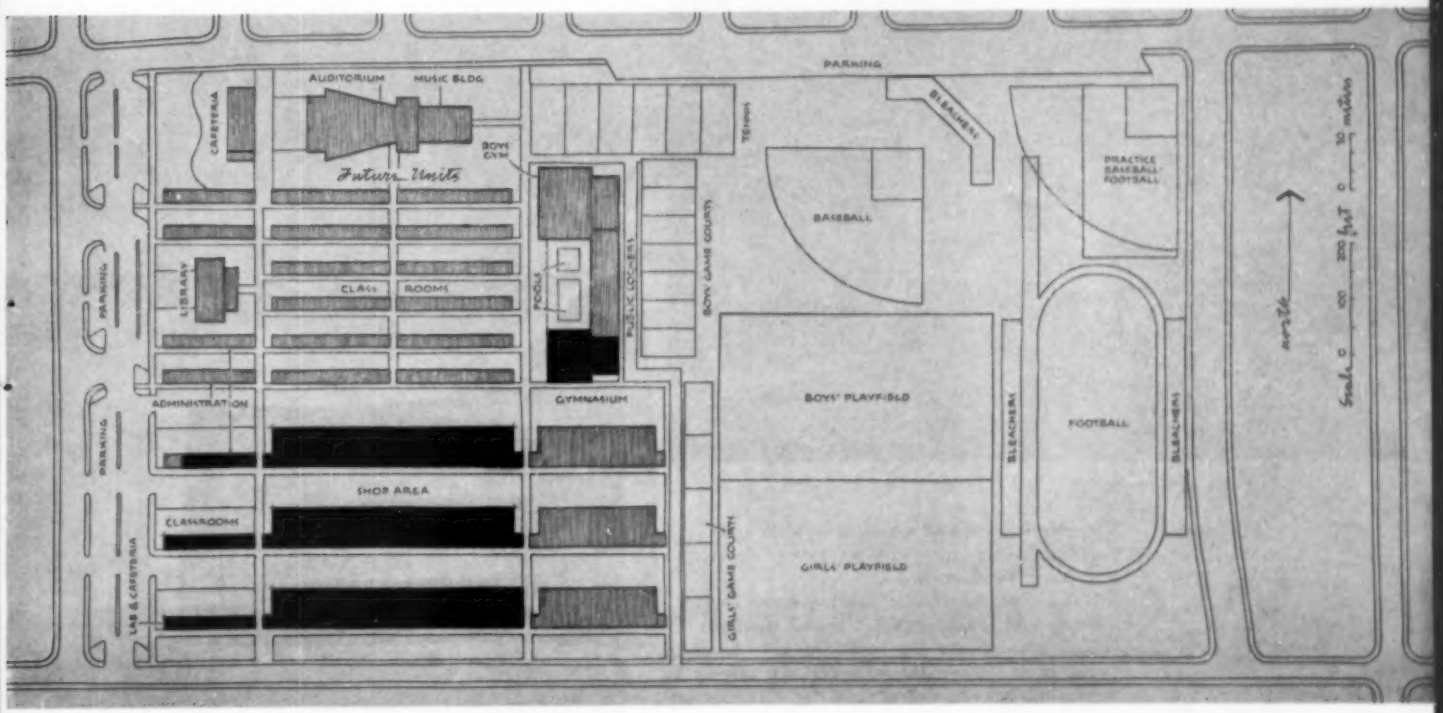
Included in the workshop-instruction buildings are 16 different types of training units, ranging from aircraft repair to paper hanging; from millwork to agriculture; each dovetailed and integrated with an over-all training program made possible by bringing all units together. In addition to its undergraduate work, the school also provides cultural and vocational education programs for adults living in the area.

The low wings of the instruction units contain administrative offices, a lab, a conference room, the cafeteria, and classrooms for academic courses. In the vocational wings, in addition to the shops, each unit has a classroom, an instructor's office, tool-storage space, materials-storage space, and special facilities as required.

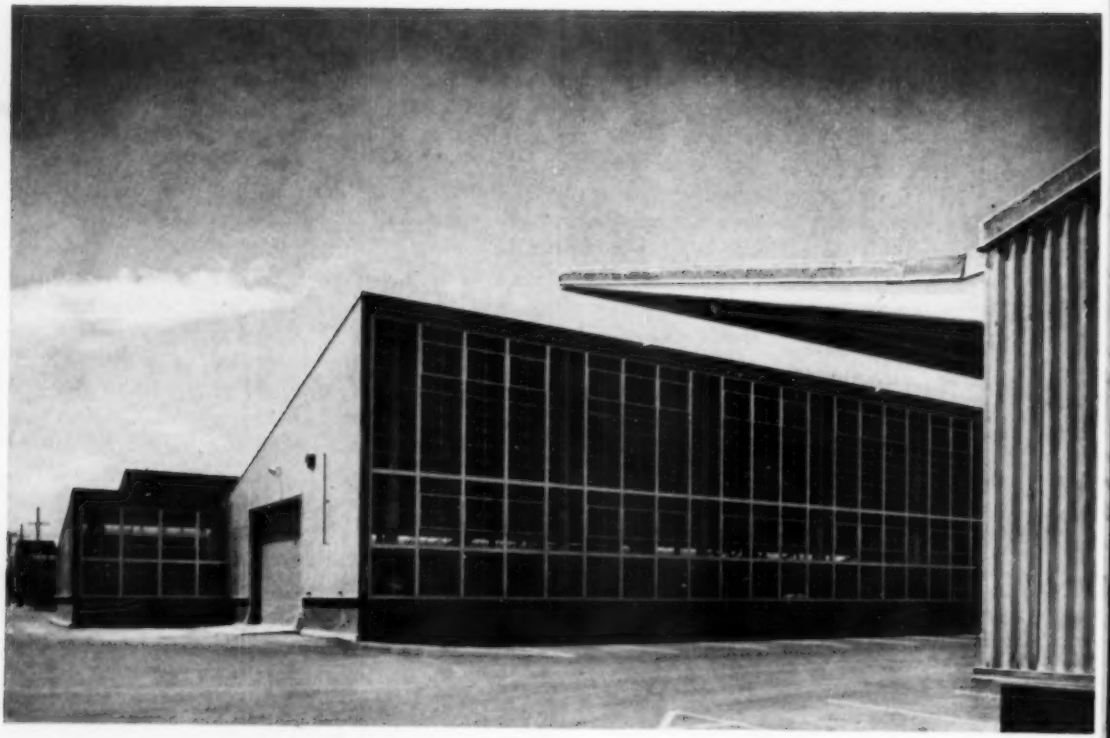
Apart from the designers' wish to give the group an industrial aspect, a stringent budget stipulated austerity of design, in order to provide the large areas required for such vocational training and the required, expensive, heavy-duty mechanical and electrical installations. In line with these considerations, the shelters were developed in a simple, shed-type section, with up-sloping, cantilevered corridor roofs where cars and small trucks can drive up and unload; high north windows that flood the shops with optimum light; and exposed framing and piping. Relieving this severe design approach, there is a lively use of color—peach for the steel frame; utility lines grouped in gay and decorative color codes—reds, blues, yellow, orange, and black. Plywood partitions and steel sash are lemon yellow.

The simple but durable structural system was worked out with ease of maintenance as a constant criterion. Foundations are reinforced concrete, as are the floor slabs at grade. The superstructure consists of a structural-steel rigid frame. Up to sill height, perimeter walls are of concrete, with corrugated iron surfacing or steel, commercial projected sash filling the areas above. For maximum flexibility, interior partitions are nonbearing—plywood on exposed, light wood frame—to permit free adaptation of spaces to changing requirements.

Finish floors are steel-troweled concrete, asphalt tile, or composition. Ceilings are acoustic tile, fiberboard tile, or framing left exposed. Roofs are of corrugated iron. The school is heated by gas-fired, forced-air units of various types, using natural gas as fuel, with liquid gas stand-by. In special locations, natural ventilation is supplemented by fan-powered, roof-mounted ventilators. In the mill-cabinet shop, there is an underfloor sawdust exhaust system. All gas, air, water, and sprinkler- and electrical-distribution piping is supported on exposed metal angles.

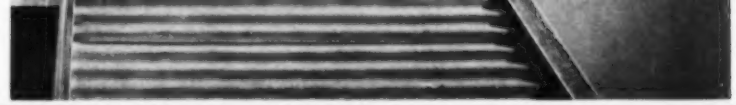


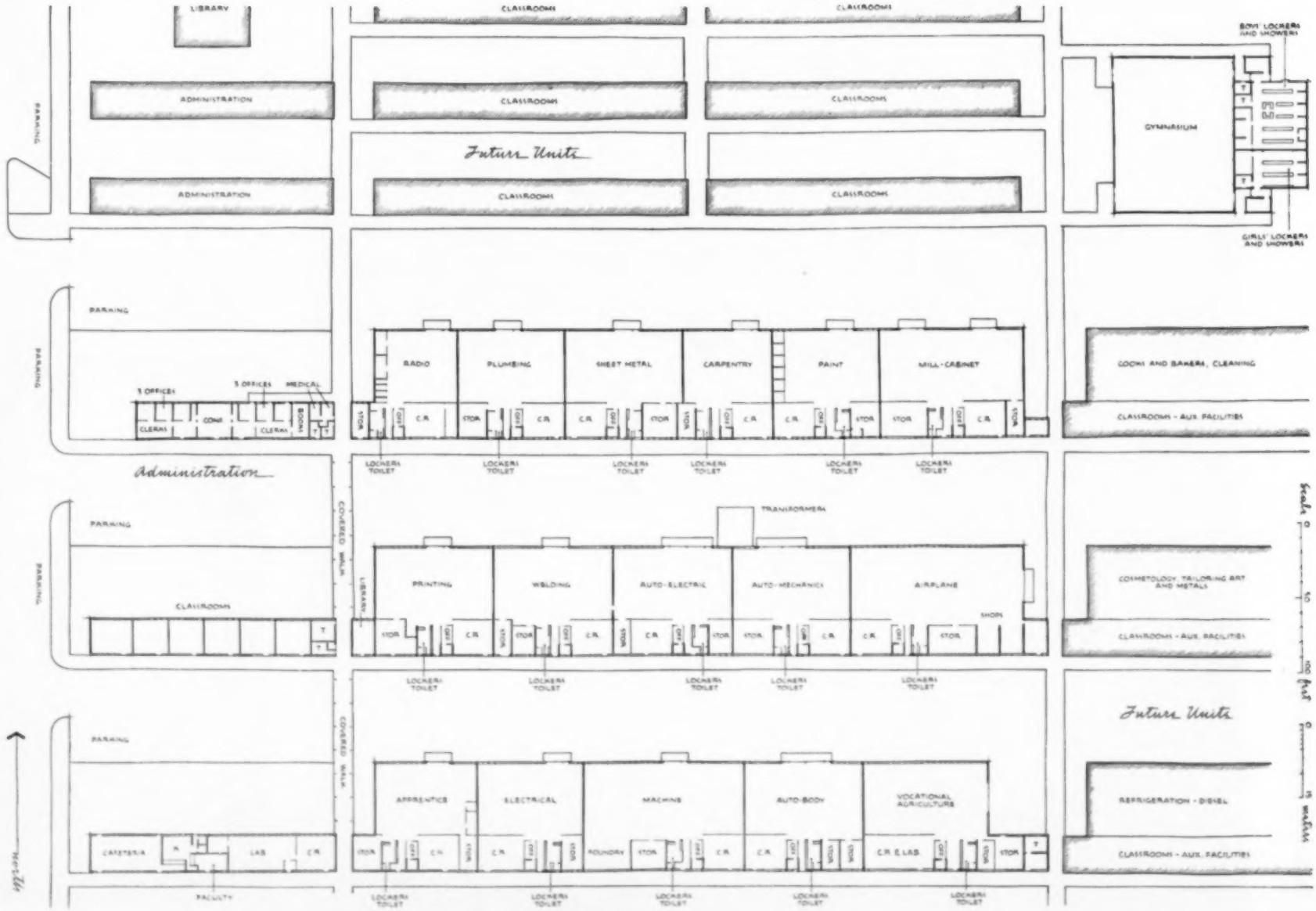
technical high school



Huge window areas fill the tall north walls of shop buildings (top); *steel sash are painted yellow; the frame members, peach.*

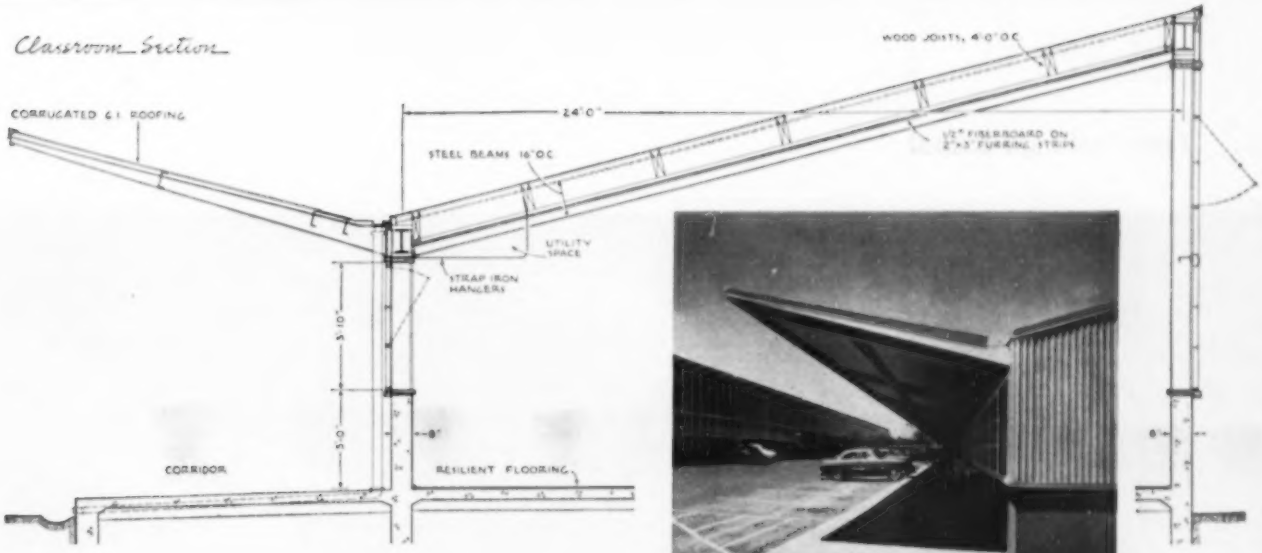
From an outdoor corridor (above) *students deal directly with the school office* (right) *through a sliding panel. Notice the acoustic-tile ceiling and metal angles* (above the windows) *that support service piping.*




LIBRARY
CLASSROOMS
CLASSROOMS
ADMINISTRATION
CLASSROOMS
CLASSROOMS
Future Units
ADMINISTRATION
CLASSROOMS
CLASSROOMS
BOYS' LOCKERS AND SHOWERS
GYMNASIUM
GIRLS' LOCKERS AND SHOWERS
PARKING
PARKING
RADIO
PLUMBING
SHEET METAL
CARPENTRY
PAINT
MILL-CABINET
3 OFFICES
3 OFFICES
MEDICAL
CLERKS
CONF.
CLERKS
BOOTH
GOOMS AND BAKERS, CLEANING
CLASSROOMS - AUX. FACILITIES
Administration
LOCKERS TOILET
PARKING
PARKING
TRANSFORMERS
COVERED WALK
LIBRARY
PRINTING
WELDING
AUTO-ELECTRIC
AUTO-MECHANICS
AIRPLANE
SHOPS
CLASSROOMS
COSMETOLOGY, TAILORING ART AND METALS
CLASSROOMS - AUX. FACILITIES
PARKING
COVERED WALK
APPRENTICE
ELECTRICAL
MACHINE
AUTO-BODY
VOCATIONAL AGRICULTURE
Future Units
CAFETERIA
LAB
C.R.
C.R. & LAB.
REFRIGERATION - DIESEL
CLASSROOMS - AUX. FACILITIES
FACULTY
LOCKERS TOILET
Scale
0
50
100 feet
0
15 Meters

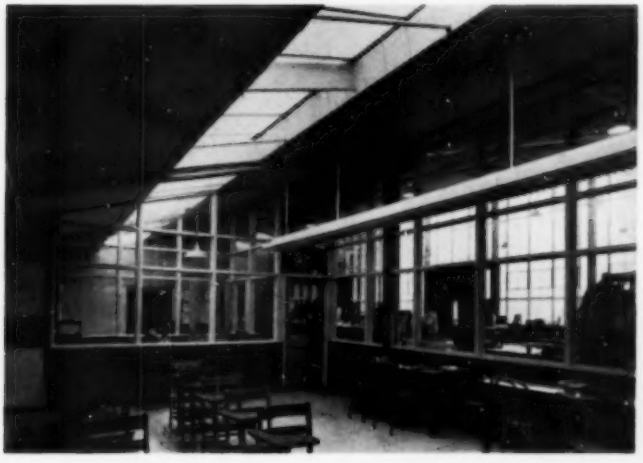
In the shallow classroom wings (above) *rooms span the whole area, with tall windows on the north: low and sun-shaded window bands, on the south.*

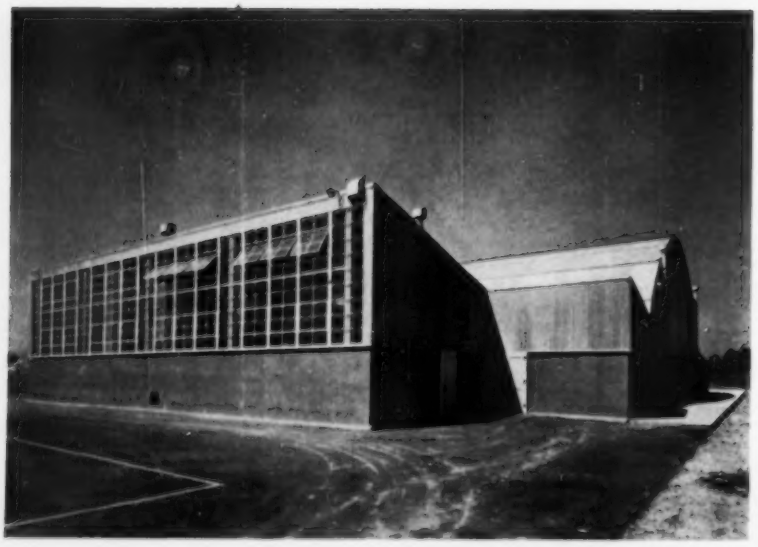
In classrooms adjoining shops (left) *the south window band is supplemented by an intermediate skylight and borrowed light from glazed partitions facing the shops.*



The bold forms of the buildings are a neat translation of familiar industrial elements. In shop areas, the roof line of the shallow wing section shown above continues on up to the 26-ft height of the tall north walls. In this latter case, an intermediate skylight brings interior light to the low portion.

The typical shop area includes the 48-ft-deep shop itself (below and bottom left) *and lower, skylighted area* (left) *in whose 24-ft depth are classrooms, instructor's office, and storage spaces. Black-and-white photographs belie the bright atmosphere of the rooms, with framing elements, sash, and pipe lines all emphasized in color.*





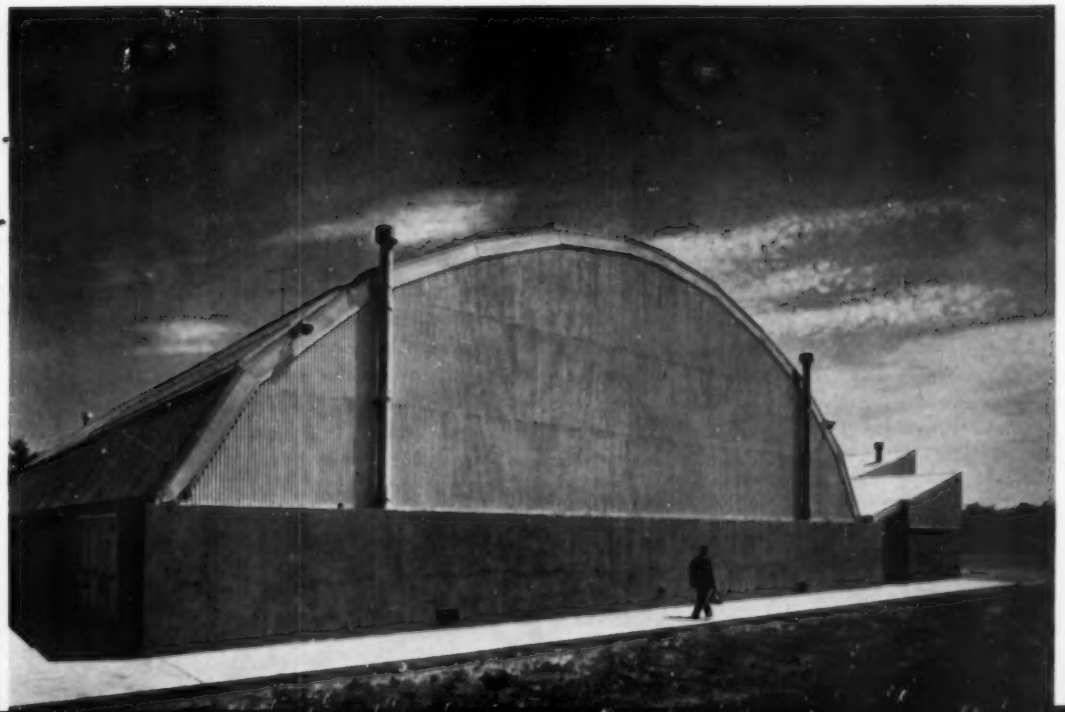
The gymnasium also has a light steel frame and base walls of concrete. For the gym space, a modified parabolic arch form is used, with daylighting provided through one windowed end and four bands of skylights. "It's like playing outdoors indoors," the architects say. The locker-room wing recalls the basic structure of the classroom-shop units.

construction

Frame, walls, floors, roof: steel frame, walls, roof — Judson - Pacific - Murphy Corporation; floors: concrete slab. **Partitions:** interior: vinyl-covered, accordian-type folding—New Castle Products; metal toilet partitions—Sanymetal Products Company, Inc.; douglas fir plywood; and exposed framing. **Windows:** sash—Soule Steel Company; glass: frosted heat-absorbing—Blue Ridge Glass Company, wire glass—Mississippi Glass Company, clear heat-absorbing — Libbey-Owens-Ford Glass Company; skylights—H. H. Robertson Company. **Doors:** hollow-metal interior doors—World Steel Products Corporation; overhead doors—Pacific Rolling Door Company. **Hardware:** lock sets—Schlage Lock Company; door closers—Norton Door Closer Company; push and pull plates—Windsor. **Paint:** interior and exterior painting and trim—Pratt & Lambert, Inc.; exterior aluminum mixing varnish—Interchemical Corporation; powder—Aluminum Company of America; gymnasium floor finish—Hillyard Chemical Company.

equipment

Kitchen: General Hotel Supply Company. **Intercommunication and public address:** Stromberg-Carlson Company. **Gymnasium:** gym seating—Fred Medart Products Company; gym lockers—Worley & Company; basketball backstops—E. P. Finigan Company. **Classrooms:** tackboard—Armstrong Cork Company, Reynolds Metals Company; chalkboard trim, chalk troughs—Reynolds Metals Company. **Lighting fixtures:** classrooms—Smoot-Holman Company, Holophane Company, Inc. **Electrical distribution:** Westinghouse Electric Corporation; clocks—Standard Electric Time Company. **Plumbing and sanitation:** gang showers—Logan Company; water closets, lavatories—American Radiator & Standard Sanitary Corporation; hose racks and cabinets, fire extinguishers—The General Pacific Corporation; electric water heater—Wesix Electric Heater Company; flush valves—Sloan Valve Company; hot-water storage tank—Acme; circulator—Bell & Gossett Company; insulation—Western Asbestos Company; sprinklers—Grinnell Company, Inc.; fire hydrant—M. Greenberg's Sons; roof, shower, bucket, and floor drains—Josam Manufacturing Company; stall showers—Fiat Metal Manufacturing Company. **Heating and ventilation:** dust control, sawdust exhaust, ventilators, hopper—American Air Filter Company; air-supply registers, return-air grills—Air Factor Company; furnace, air conditioning—Surface Combustion Corporation; air filters—Farr Company; unit heaters—C. I. Hayes, Inc.; propane air gas plant, ventilators—Gasair Company; tanks, air receivers—San Jose Steel Company, Inc.; wall heaters—Holly Manufacturing Company; blowers, fan—American Blower Corporation; starter—General Electric Company. **Laboratory equipment:** Mullen Manufacturing Company.



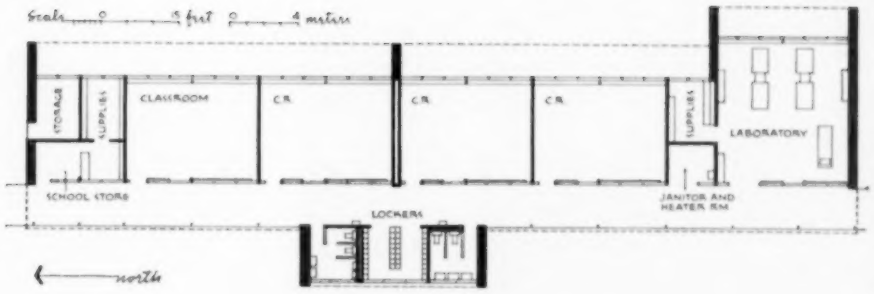
for private schooling

type	church boarding school
location	Austin, Texas
architects	Fehr & Granger
structural engineers	Wilson & Cottingham
mechanical engineer	George Rhine
general contractor	Leslie Crockett Construction Company

Leaders of the Episcopal Church in Texas realize how anachronistic medieval surroundings with outmoded social values are—as background for the education of children. They feel that a strong religious and moral fiber cannot be developed in young minds with make-believe educational measures: that if religion and education are to have strength and substance today, they must be founded in truth and in a contemporary framework, not only in progressive academic programs but also in modern surroundings. It is also their belief that, since we live in a mixed society as adults, we should train our children in the same kind of relationship. Texas Episcopalians have, therefore, established the first coeducational religious boarding school in America. Also, they believe that a contemporary expression of architecture in the school buildings is the only honest expression and therefore the most desirable. As a result, the students of this school have handsome buildings which are designed for the hot, semi-arid Texas climate, and which are constructed from local materials.

To achieve this remarkable goal the church fathers began by commissioning one of the most progressive firms in the state to plan and design the school for a site 250 ft above Lake Austin, eight miles from town. Spread out in campus fashion (*above*), the plan is such that buildings can be built one at a time, as money becomes available. The first drive for money netted enough to build the four buildings shown here—two dormitories, a classroom building, and a dining hall—all fully equipped. (Other buildings are now under construction, as a result of subsequent donations, and a chapel is near completion.) The boys' and girls' dormitories are the same in plan and construction, except as foundations differ with the changing contours of the rock formation of the site. The dormitories have central corridors, with double rooms on either sides. To minimize noise from the corridors, lockers which serve as closets stand between the corridors and the rooms. Clerestory windows let north light into the corridors over the lockers, and the rooms themselves are all provided with spacious windows for light and ventilation.

Similar in concept to the dormitory rooms, the classrooms (*acrosspage*) are arranged in a north and south line, with large windows opening to the east. On the west side there are only high strip windows under a wide overhang which covers the exterior corridor. Midway along the corridor, across from the classrooms, are lockers and washrooms. In south central Texas, exterior corridors are usable even in the coldest weather.



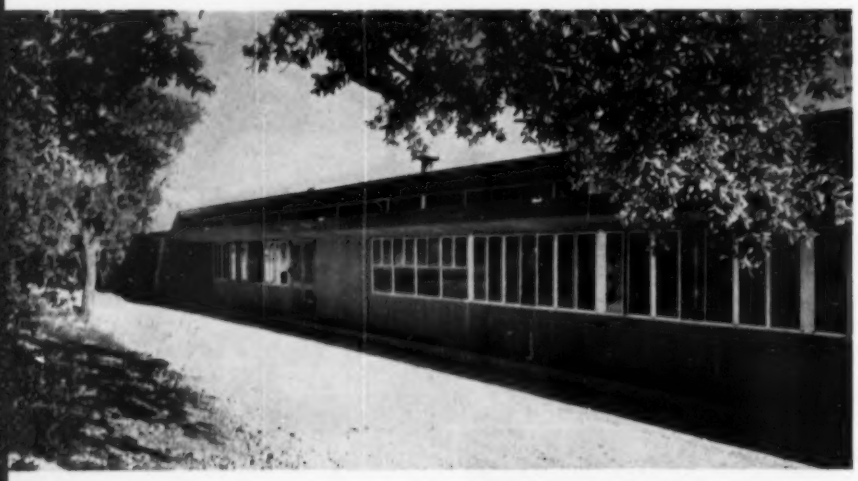
Exterior corridor of classroom building (above) *separates the locker-washroom element from the classrooms. Virtually no direct sunlight penetrates the high strip windows on the west side.*

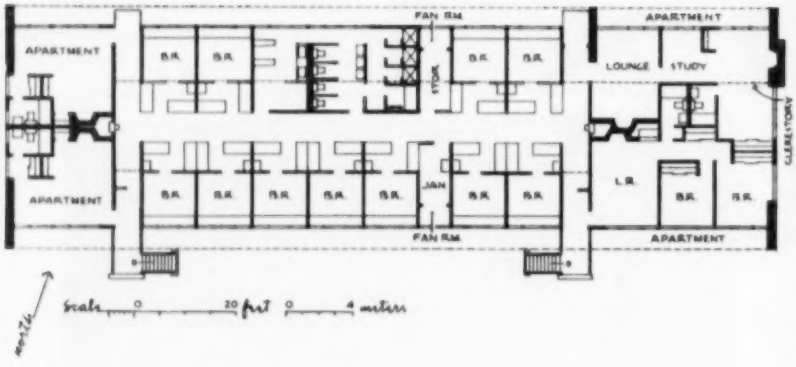
Windows on east side (right) *are protected from all but the very early sun; the rest of the day the classrooms enjoy abundant indirect light.*

All fieldstone was collected on the site.

Photos: Ulric Meisel

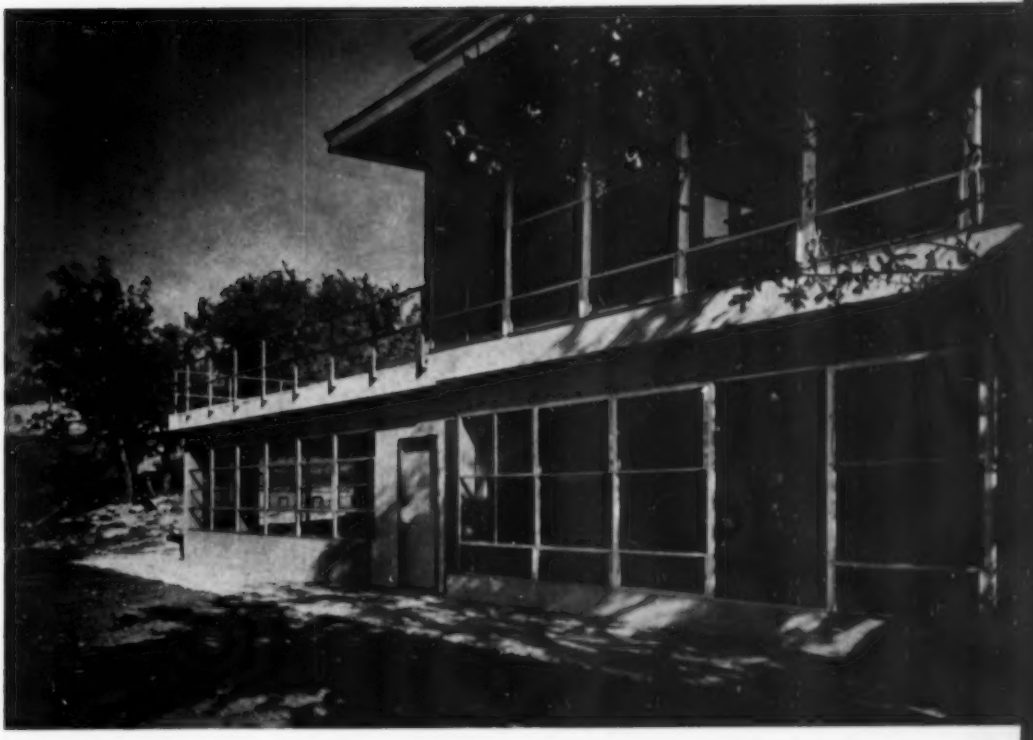
church boarding school



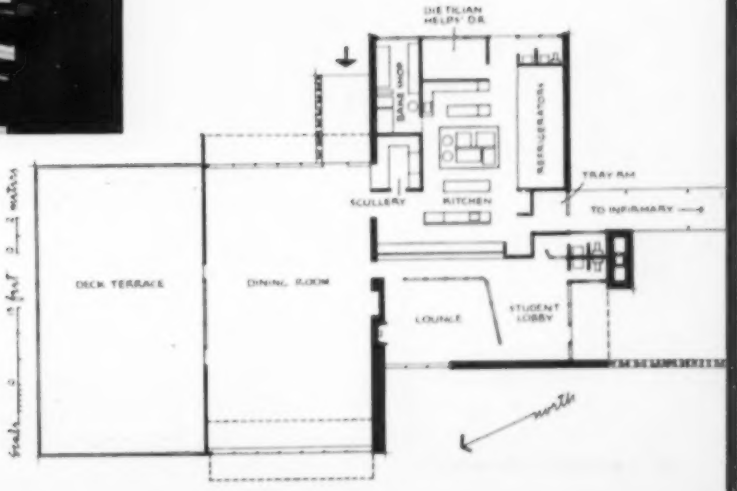


Typical dormitory (above) *is constructed of wood, stone, concrete, building tile, bar joists, plywood, and asbestos cement.*

Interior photos (right) *show lockers along the corridor and a view into one of the rooms, from the corridor. Clerestory windows make the corridor well lighted in the daytime.*

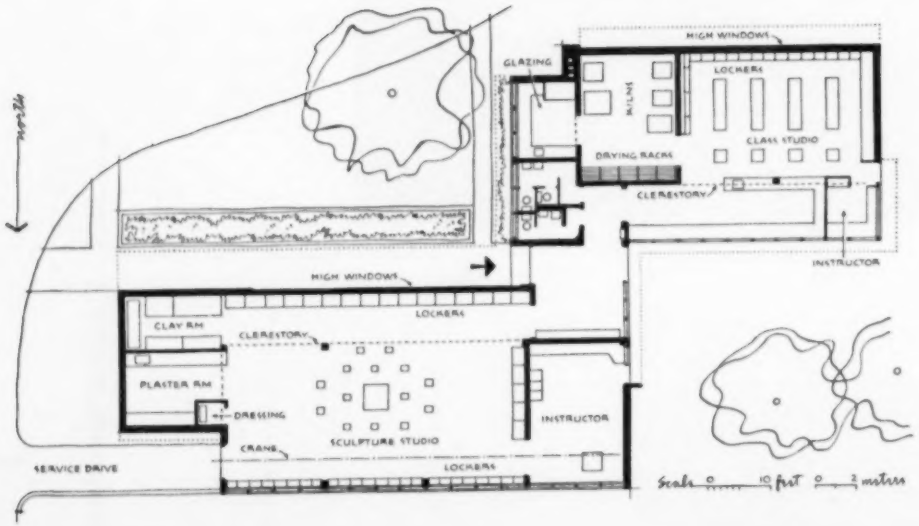


Dining room (left) *is on second floor of dining hall* (above). *Until more of the total school plan is completed, the ground floor is being used for a library, a playroom, and a maintenance shop. From the deck, Lake Austin can be seen, 250 feet below. Stone stairs and walk* (left) *lead to classroom building.*



for art instruction

type	art studio
location	Kansas City, Missouri
architects	Runnells, Clark, Waugh & Matsumoto
engineer	Carl P. Forsythe
landscape architects	Hare and Hare
general contractor	Long Construction Company



The Kansas City Art Institute is located in a section known as the Cultural Center of Greater Kansas City, a relatively small area occupied by the Nelson-Atkins Gallery of Art, four colleges, Kansas City University, and the Art Institute. Supported largely by endowments and donations from its more than two thousand members, the Institute offers undergraduate, graduate, and professional fine-arts and educational training to people of all ages and walks of life. Besides being an accredited school of higher learning in fine arts, it also serves as an art center for children and adults of the community who are not necessarily interested in pursuing academic degrees.

Several years ago, the Institute called upon Architects Runnells, Clark, Waugh & Matsumoto to design an art classroom building (*February 1948 P/A*). So successful was this first venture that the Institute commissioned these same architects to design another unit in its projected series of new buildings, this one for the plastic arts—sculpture and ceramics.

As in the previous building, north light was one of the main considerations of planning. Though less space was needed, more mechanical equipment had to be planned for, such as kilns and devices for handling large, heavy materials. Since the requirements of a ceramic studio are so different from those of a sculpture studio, the architects designed them as separate units, bound together by a glass-walled foyer (*below*) and a common eaves line. At night the lighted foyer becomes a public display room for passers-by.

Even in the daytime, sculpture in foyer can be seen from the outside (left). *Taller wing is sculpture studio.* **Photos: Julius Shulman**

art studio

Heavy sculpture materials are brought into studio on I-beam winch track (above and below) through ceiling-height doors. Limestone, brick, and corrugated asbestos cement are used for facing materials over reinforced-concrete structure.

Ceramic mixing room (right) is finished with natural materials—wood, steel, and pumice blocks.

for architectural training

type	architectural school
location	Auburn, Alabama
architects	Pearson, Tittle & Narrows
structural engineer	Strickland & Associates
mechanical engineer	James A. Evans
electrical engineer	Mosley & Yarbrough
contractors-engineers	A. C. Samford, Inc.

The fifth-year design students at Alabama Polytechnic Institute School of Architecture were given a program for the design of a new building for the School of Architecture and the Arts on several campus sites. Working in groups, the students did such thorough jobs that Turpin C. Bannister, then dean of the School of Architecture and Arts, and his faculty were able to use their work in drafting the building program from which Architects Pearson, Tittle & Narrows worked. The requirements included well-designed space for students and teachers of architecture, landscape architecture, building construction, interior design, art, music, and drama.

The site chosen was a corner lot next to an existing auditorium which had to be maintained because of sentiment. It was decided that the building was to be contemporary in design but must conform to the existing buildings, at least in color and possibly in materials used. However, the budget was not large enough to encompass the whole program at one time, so the new building was designed to house all of the departments except music and drama, which are to get another adjoining building, some time in the future. Meanwhile, these departments have been given temporary space in the new building.

The School of Architecture enjoys the greatest amount of space in this new structure. Both the main and second floors are designed for its use, though the exhibit room on the main floor and the library on the second are shared by all the arts. The dominant features of these two floor plans are the long open design laboratories on the north side. They have been left free of permanent partitions to make them as flexible as possible according to changing needs.

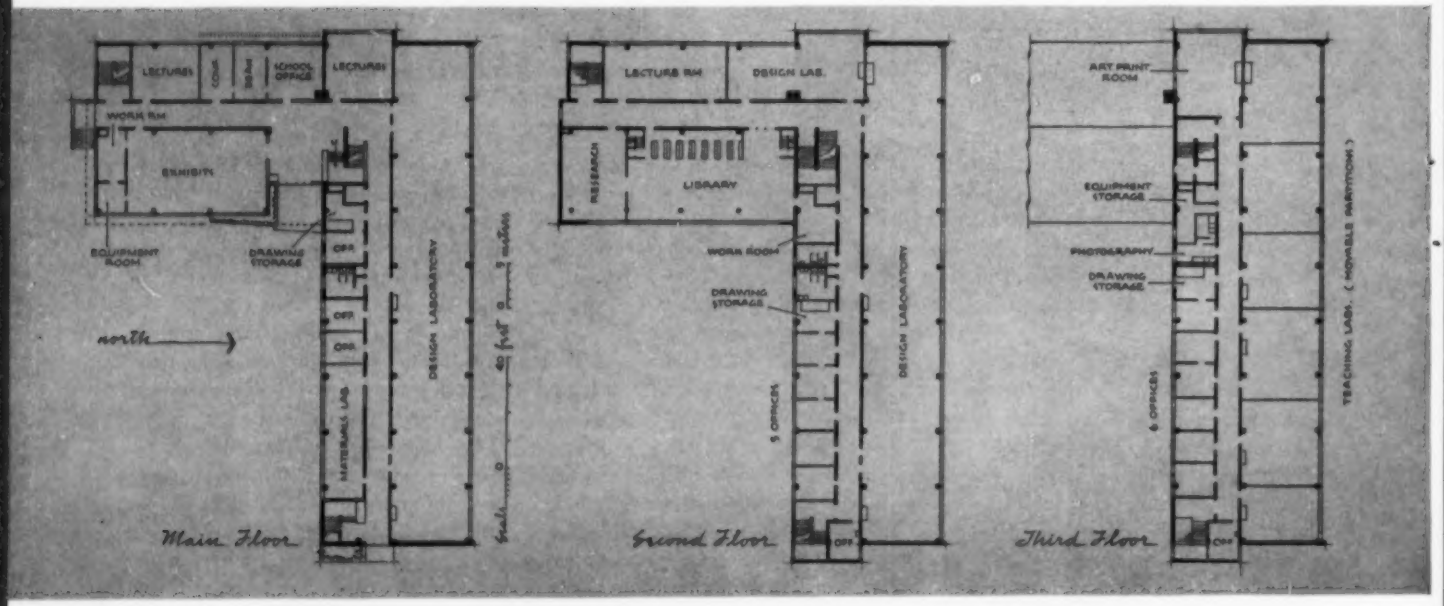
It is unusual to find an architctural school with adequate space, not only for drafting rooms but also for exhibitions and judgments. Here we find separate areas for all three operations, plus a library.

The other departments carry on their work below the main floor, and on the third floor, which is a continuation upward of the east-west wing.

For a building of these dimensions, the architects found reinforced concrete to be the most economical method of construction. The floors are pan-form rib slabs. Columns are set back from the walls, which are of glass, brick, and limestone.

Design laboratories (above) *run the entire length of north side. Limestone-veneered stairwell is cantilevered at top two stories.*

Set-back columns in library (left) *permit uninterrupted window wall, giving the desks and stacks much more light than if columns had been used as mullions. Open-stack arrangement provides more stimulus to inquiry and research on the part of students than a central check-out-desk arrangement would have.* Photos: Jack Holmes



Large, well-lighted exhibit room (above), *separated from main entrance only by a glass wall, is used by all departments in the building. Its flexibility offers students experience in space planning.*

Exhibiting work is so important here that shelves are provided even in lecture rooms (right). *Walls and ceiling are plaster; flooring is asphalt tile.*

for small children

type	elementary school
location	Needham, Massachusetts
architects	Hugh Stubbins Associates
associated architects	Kilham, Hopkins, Greeley & Brodie
engineers	Cleverdon, Varney & Pike
site and landscape	Chambers & Moriece
general contractor	Vara Construction, Inc.

Inviting main entrance (above) *is indicative of reduced scale throughout the building. Laminated wood beams are supported here by steel columns and at window mullions by H-beams encased in brick and concrete.*

Doors in background (left) *open into gymnasium; stairs lead to cafeteria-assembly room below gymnasium. Blue stone is laid over reinforced concrete floor.*

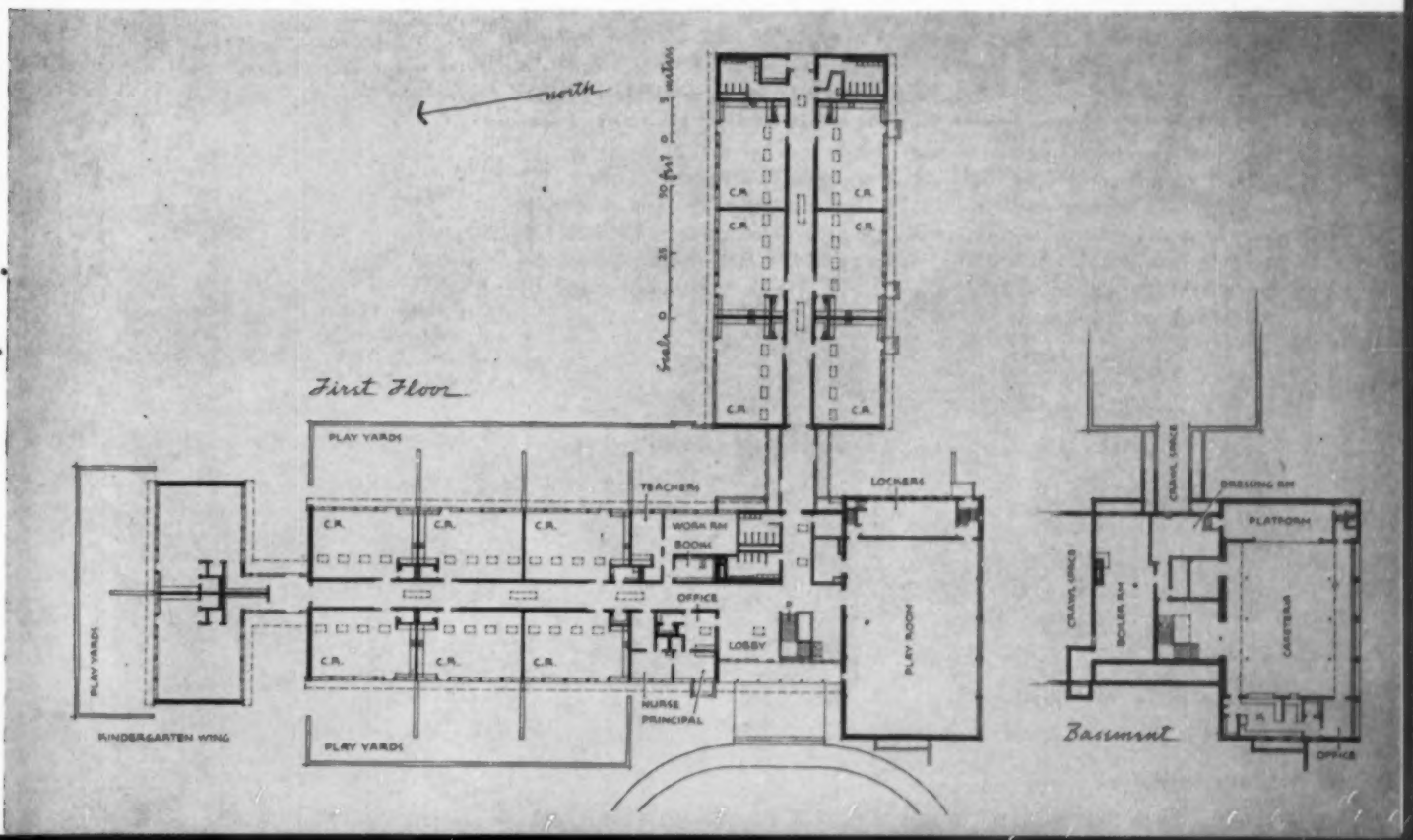
Photos: Richard Garrison

Kindergarten bay (above) *is lighted from two sides, so does not need roof bubbles. Doors open from classrooms onto small playground where children will not be disturbed by older students. This bay can be entered at corridor connecting it with main building, eliminating unnecessary traffic at main entrance.*

From the very outset, when the Needham school-building committee decided to adopt a long-range building economy program, right through occupancy by students and teachers, this project has been almost a model study in school design.

To be sure, the building committee was cost-conscious; but it was not shortsighted. It well understood, for example, that true economy would not result from false "savings" in the initial building cost —savings which are often lost many times over in high maintenance costs, early obsolescence, and large insurance premiums, not to mention losses in neighborhood real-estate values. Also, the committee saw that only through a progressive approach to architecture could it hope to achieve real economy. Needham could not afford to build a first-rate elementary school and, at the same time, spend additional money for a colonial disguise. Besides, many of these New England residents are now overweary of the impoverished philosophy of false traditionalism. (One of New England's greatest figures, Ralph Waldo Emerson, said as much more than a hundred years ago.)

Having decided, then, that Needham was to have a contemporary school in every possible respect, the committee engaged Architect Hugh Stubbins, already well known for his excellent work in the contemporary field, and gave him almost complete freedom within the following program: 15 classrooms, including two for kindergarten and one for remedial work; administration and dietitian's offices; playroom-gymnasium: separate cafeteria and assembly room (if possible); physical plant; and storage space. The site—a bare, nine-acre, triangular piece of land, formerly farm land—was in the middle of a newly developed residential neighborhood and had a sharp grade drop.



View from street (above) *shows relationship of two-story element to the rest of the school. Cafeteria is tucked under gymnasium but gets full amount of light and ventilation as a result of grade slope.*

Laminated wood bents and purlins (top, acrosspage), *2½" T&G decking, rigid insulation, and tar and gravel roof. Wood floor is laid over reinforced concrete slab, supported by concrete beams.*

For economy, the architect used a double-loaded-corridor system of classroom bays, i.e., classrooms on both sides of an interior corridor. He achieved balanced lighting by placing translucent bubbles in the roof close to interior walls (*acrosspage*). Then, to save as much of the plot as possible for playground, he arranged the bays in a general L-shape, the two major elements intersecting at the point of greatest grade slope. Here, the two-story unit — gymnasium-playroom on main floor, and cafeteria-assembly room at grade—was placed, with no interference either to the scale of the building or to light and ventilation.

One classroom bay and the kindergarten bay are connected to the central unit by short passageways, not only to avoid the big-building aspect but also to separate areas of different noise intensities. Throughout the entire structure, however, there is the distinct feeling of scale most appropriate for small children. It was the architect's express intention of making the children feel as though they belong to the building, and it to them.

One child, when asked in class to list the people who had helped him most in everyday life, said, "Daddy, Mommy, the doctor, President Eisenhower, and the architect."

Imposing end view of east classroom bay (below) *shows gentleness of roof pitch. Doors are framed with glass to light the corridor.*

Acoustical ceiling tile between exposed roof beams handles the sound problem very well. Tinted chalkboards get strong diffused light from roof bubbles. Note how windows rise between roof beams, to the ceiling. Classroom coat rack, in front of sinks (below), can be wheeled around and used as a screen.

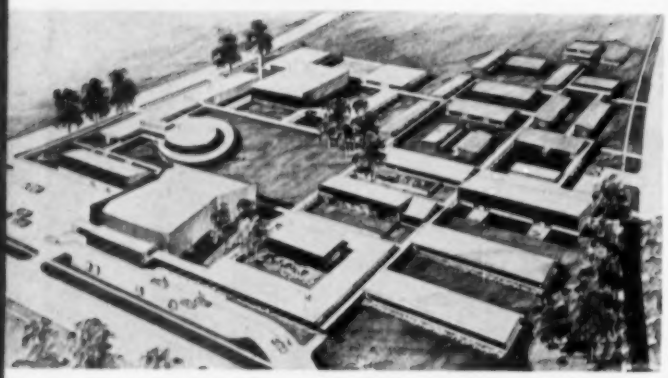
This well-equipped school cost $14.05 per sq ft, but Needham's building committee believes it was a good investment. The school will be serving the community well at least 25 years from now and probably a lot longer.

for both students and adults

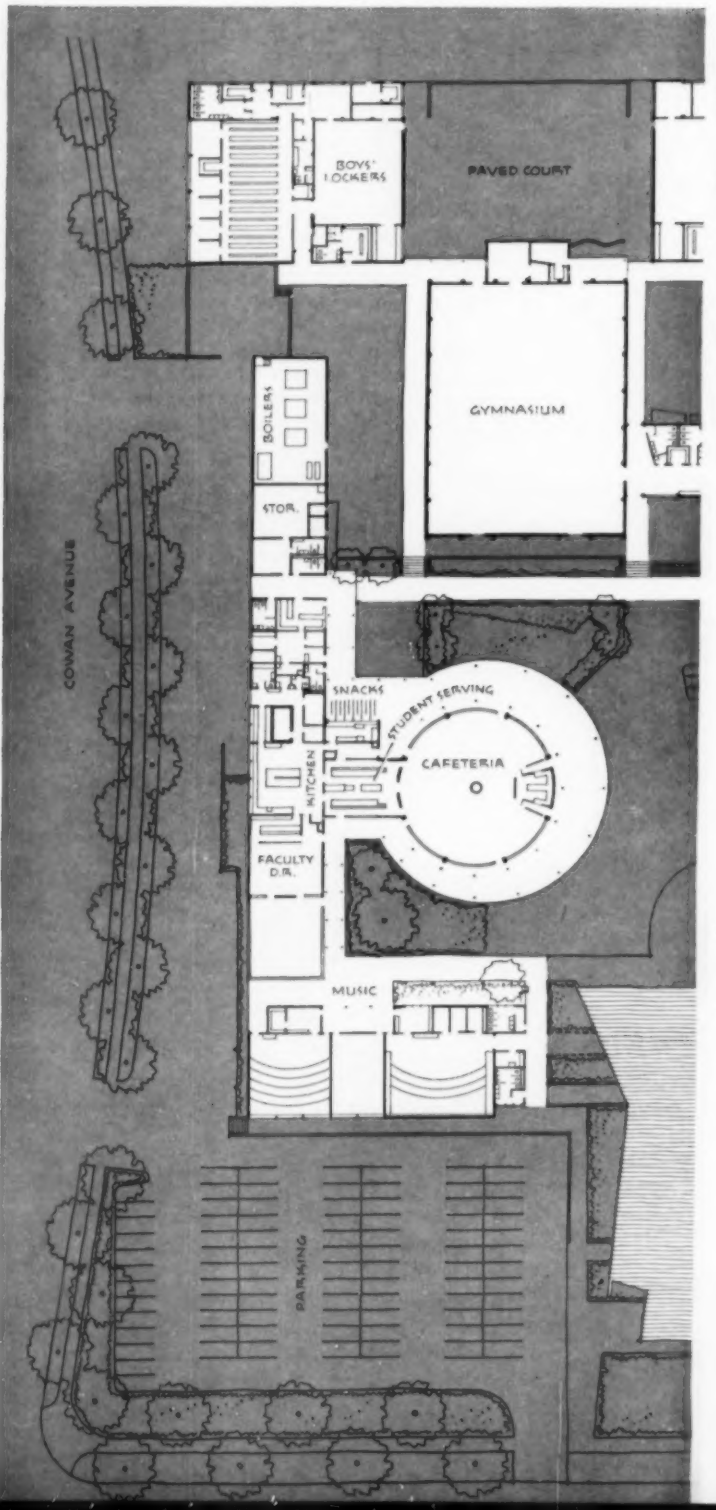
type	high school
location	Los Angeles, California
architects	Sumner Spaulding-John Rex
structural engineer	C. G. DeSwarte
mechanical engineers	Bartlett & Berky
general contractors	V. O. Brunzell and Gallinger Construction Co.

Among the more remarkable aspects of this extraordinary school-community center are the individual design of the separate buildings to serve their particular functions; the connecting covered walkways; and the grouping around a central courtyard where all sorts of school and community activities take place.

Photos: Julius Shulman

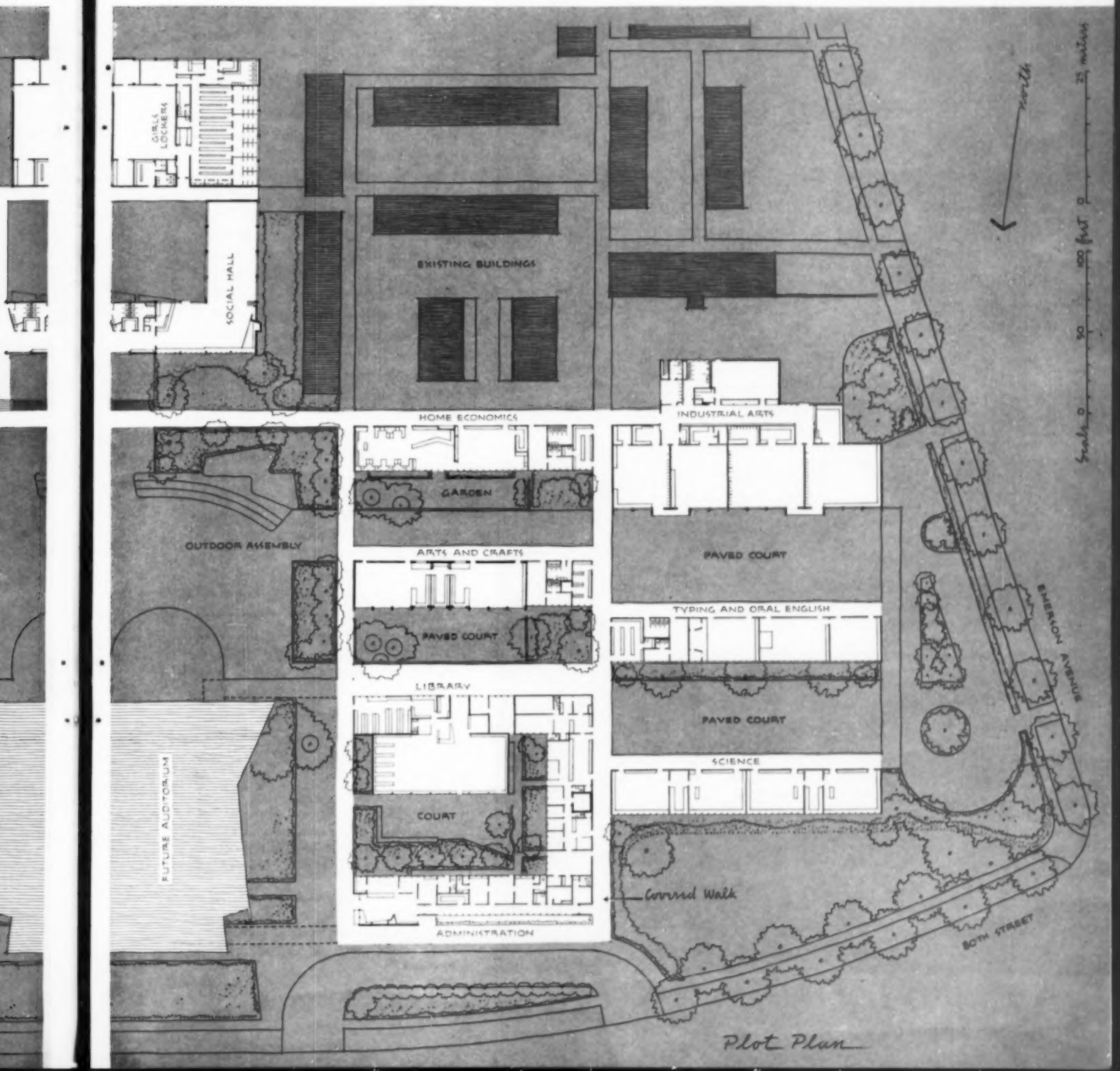


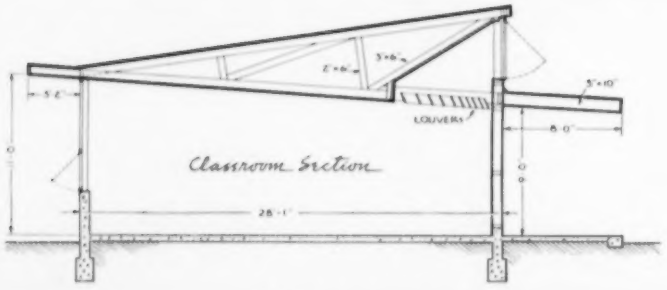
The photograph was taken from a walkway roof looking across the walled court of the arts and crafts building to the rectangular mass of the gym, on the far side of the outdoor assembly area. At left of gym is the circular cafeteria building.



On first viewing this campus, one might think that one had wandered into a great public recreation center rather than onto the premises of a public high school. And, in many respects, the impression would be correct. For this junior-senior high school (later—when a new school is built—to become simply the junior high) is as much a community center as it is an educational facility for high-school students. An extensive adult-education program is conducted by a number of the school departments; but the place also serves as a neighborhood meeting place, for concerts, folk dancing, and as a general social center. The school is located in one of Los Angeles' fastest-growing sections, near the municipal airport and several aircraft plants, where (until the school was commissioned) no community facilities had been planned.

Heart of the design solution is the organization of the several units, joined by covered walkways, around a great, central courtyard that is used for a variety of community and student activities. All main buildings open to this central area,





so that classes can readily be transferred out of doors when this is considered desirable. Apart from carrying on California's indoor-outdoor tradition, the central-campus scheme provides maximum protection from traffic and extraneous noise. In the opinion of Mrs. Margaret Horn, the principal: "This layout, with lack of interior halls and lockers, results in much quieter classrooms, and the 'western hacienda' design promotes a sense of freedom and release for pupils, without the feeling of restriction common in traditional schools. Students' activities and grades indicate that they are more receptive to education here."

Among other advantages of the plan, with each major department housed in its own building, academic portions of the school may be used independently of the cultural facilities. Or any one unit can be used separately; or, obviously, the buildings can be used in any combination, or co-ordinated as a whole. Not the least remarkable thing about the group is that, while the various buildings form an integrated design unit, the separate units are planned and designed specifically for the functions intended, and even structural systems vary—in an effort to achieve the most economical solutions possible for the needs and uses of the different building types.

For example, the administration building and typical classroom pavilions are of wood-stud, plaster-wall construction, using wood trusses and wood sheathing. Continuous windows are used from sill to ceiling on north exposures, while clerestory lighting occurs above covered access passages along the south walls; aluminum louvers in ceiling wells exclude direct sunlight. The industrial arts building, arts and crafts building, library, and music buildings are framed with welded

From a corner of the administration building (top) *a covered walk leads back to the instruction units; wing at right of photo houses science classrooms.*

In the typical classroom (left), *an aluminum louver in a ceiling well cuts direct sunlight from the south-facing clerestories that occur above roofs of access walkways* (section).

steel-frame bents on reinforced concrete slabs. Huge doors open on the north side of the arts building to a walled courtyard, for outside art classes, while the library, with space for 10,000 volumes, is adjoined by its own paved, walled courtyard, with shaded, landscaped study areas.

Reinforced concrete frames the gym and social hall, with steel trusses and wood sheathing, while locker buildings have brick filler walls within their reinforced concrete frames. Gym and social hall are adjoined by paved and walled patios that are used for outdoor group classes, dancing, ping pong, shuffleboard, etc. The round cafeteria building has reinforced concrete walls and a steel roof structure employing wood sheathing. The plan of the building provides a sheltered, outdoor dining terrace, as well as the indoor cafeteria. Walls between the two are mainly of glass, in an effort to bring the pupils who bring their lunches close to those who buy them at the cafeteria, thus minimizing social cliques.

In the future auditorium, the stage is planned so that it will open out to the campus courtyard, in addition to the auditorium proper. Thus, it will serve for neighborhood festivals, concerts, and the like, as readily as for routine educational functions.

The buildings are heated from a central boiler house (reinforced concrete throughout), with blower-type hot-water convectors used as the main room source. The entire systems of heat and electrical distribution are housed in a readily accessible, underground tunnel. Cost of the buildings, including paving, walls, fencing, covered walkways, and underground work—but not including landscaping or collateral school equipment — came to $11.40 per sq ft. The units shown were completed in February 1941.

The library, with space for 10,000 volumes, is in a wing at the rear of the administration building. The bordering landscaped patio is used for outdoor reading. Framed in welded-steel bents, the building has ceiling-height windows along the north wall; a narrow, louvered window band occurs at the ceiling line on the south wall.

In addition to school offices, the administration building (right) contains counselors' rooms, an attendance office, and a health unit. This building is of standard, wood-stud framing, as are the typical classroom wings.

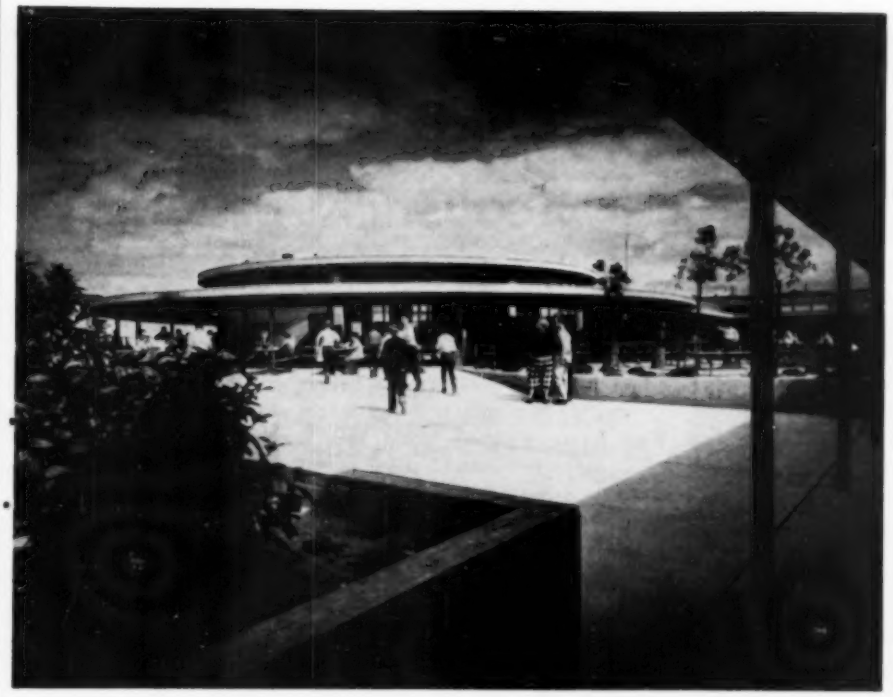
high school

The upsloping, welded-steel bent frames of the arts and crafts building hold tall windows that provide ideal north lighting. Areas beneath consist of double doors that open the main rooms fully to the walled patio that also serves as an outdoor classroom. The low element in the foreground (right) contains teachers' rooms, toilets, and lockers.

The industrial arts building (this page) *is similar in structure to the arts and crafts building* (across-page). *Electrical, printing, wood- and metal-working shops line the high north wall and open to the adjoining court. In a wing to the rear are an office, toilets, and a windowless, audio-visual classroom.*

high school

An L-shaped unit beside the gym contains the school social hall and recreation room. This structure, the gym, and the girls' locker building define a large outdoor court equipped with a barbecue fireplace (right). *Numerous social events as well as outdoor physical-education classes are held in this patio.*



The circular cafeteria building occurs on the east side of the great central courtyard, just next to the gym (background, photo immediately above). The exterior canopy is considerably wider on one side than on the other, to provide shelter for the large number of students who patronize an outside snack bar.

construction

Foundation, floor, framing, wall, roof: reinforced-concrete foundation and floors: cement—Riverside Cement Company; wood, reinforced concrete, and steel framing: cement—Riverside Cement Company, steel—Consolidated Steel Corporation; reinforced-concrete and brick walls: cement—Riverside Cement Company, brick—Los Angeles Brick Company; steel roof trusses plus steel and wood joists: steel—Consolidated Steel Corporation. **Wall surfacing:** ceramic veneer, tile—Gladding McBean & Company; plaster—Blue Diamond Corporation; plywood—United States Plywood Corporation. **Floor surfacing:** hardwood flooring—E. L. Bruce Company; asphalt tile—Mastic Tile Corporation of America. **Ceiling surfacing:** reinforced acoustical tile—United States Gypsum Company. **Roof surfacing:** composition, built-up roofing—The Flintkote Company, Building Materials Division; gravel surface. **Dampproofing:** The Flintkote Company. **Insulation:** mineral-type batting. **Roof drainage:** galvanized-iron gutters and downspouts—Armco Steel Corporation. **Partitions:** metal toilet partitions—Fiat Metal Manufacturing Company. **Windows:** steel and aluminum sash: steel—Ceco Steel Products Corporation, aluminum—Glide Windows, Inc.; glass—Mississippi Glass Company; aluminum store-front—The Kawneer Company. **Doors:** flush-wood interior doors. **Hardware:** lock sets—The American Hardware Corporation, Russell & Erwin Division; door closers—The Oscar C. Rixson Company; rolling door—Acme Central Metal Products, Inc.; panic exit—Vonnegut Hardware Company, Von Duprin Division. **Paint and stain:** exterior—Dunn-Edwards Corporation.

equipment

Intercommunication: Stromberg-Carlson Company. **Public address:** Western Electric Company, Jensen Manufacturing Company. **Lighting fixtures:** incandescent concentric-ring fixtures with silver bowl lamps in office and classroom areas—Leader Electric Company; flush fixtures in office and lobby areas—Gotham Lighting Corporation; passages—Benjamin Electric Manufacturing Company. **Electrical distribution:** panelboards—Zinsco Electrical Products; circuit breakers—Mullenbach Electrical Manufacturing Company. **Plumbing and sanitation:** water closets—American Radiator & Standard Sanitary Corporation; toilet seats—Swedish Crucible Steel Company, Olsonite Plastics Division; flush valves—Sloan Valve Company; showers: marble—Vermont Marble Company, controls—Logansport Machine Company, Inc. **Heating and ventilation:** oil- and gas-fired furnaces—The H. B. Smith Company, Inc.; convectors—Trane Company; unit heaters—American Air Filter Company, Inc., Herman Nelson Division; controls—Minneapolis-Honeywell Regulator Company; ventilators—G. C. Breidert Company.

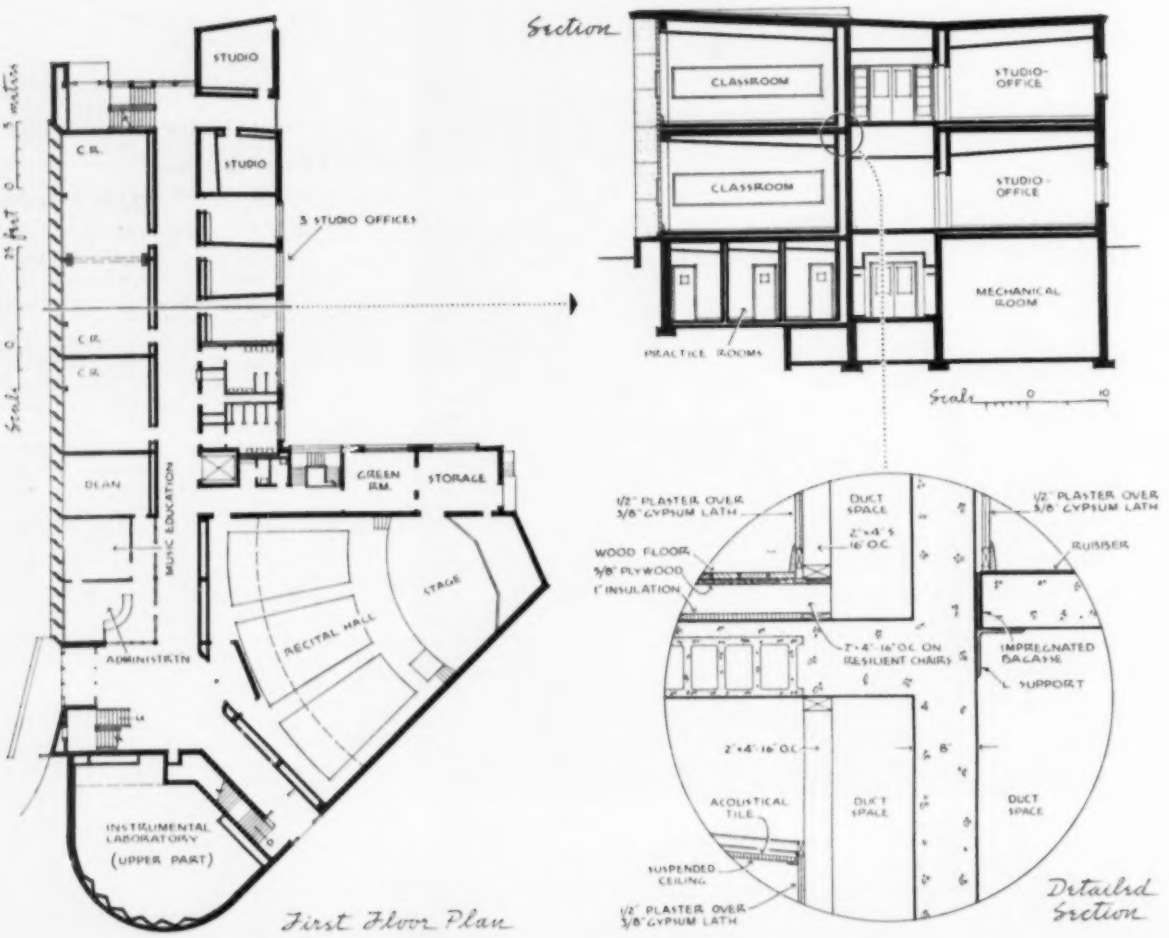
ACOUSTICAL DESIGN:

Acoustical design for the Classroom and Laboratory Building at Montana State University's School of Music (Missoula) presented two basic problems: sound transmission between rooms and sound conditioning within rooms.

In zoning the building, Architects Fox & Ballas* considered the elimination of sound transmission to be of first importance. As a result, the primary acoustical zones of the structure are separated by corridors and, to a degree, isolated by wings. As the sound transmission of a wall is directly related to its mass, 8" concrete walls were considered necessary for the corridors. Steel angles, bolted to these walls, support the isolated concrete-floor slabs. All angles were padded with begasse fibers (bitumen-impregnated) before receiving the slabs. While acting as sound blocks between areas, the only sound absorption material in the corridors is a suspended-ceiling assembly of acoustical tiles and metal units. Sound transmission through heating and ventilating ducts has been eliminated by the provision of glass-fiber duct liners of various thicknesses. Where classrooms and teaching-practice areas are located on the central-fan system, duct work has been designed to minimize cross talk. Additional precautions include separate fan systems for the recital hall as well as the instrument and choral labs. As operable windows would have presented a serious sound leakage, light-directing glass block over clear-vision, double-glazed window strips were specified for the fenestration on the west elevation—a combination that reduces sound transmission to a minimum while assuring maximum nonglare daylight.

The three types of classroom walls are: exterior—glass block; between rooms—

*Vern O. Knudsen, Acoustical Consultant.



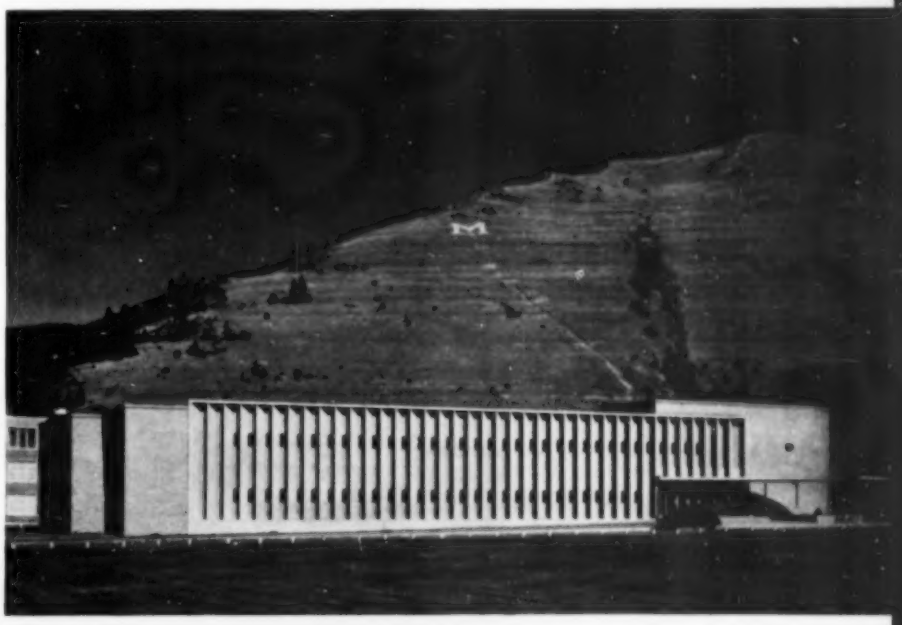
School of Music, Montana State University

10″ pumice block with contact plaster; at corridors—2″ x 4″ stud walls with gypsum lath and plaster over duct work. Wood floors are laid over sleepers mounted on metal and felt acoustical chairs. Suspended ceilings slope upwards from corridor to exterior walls and are faced with perforated acoustical tiles.

In the teaching studios and practice rooms, sloping ceilings are similar to those in classrooms; nonparallel walls reduce flutter. Depending upon exposure, windows are glass block or double-glazed. Four-inch brick walls between studios are furred with 1″ x 4″ wood strips; gypsum lath for plaster is held in place by resilient metal clips. As the framing, duct work, and corridor wall measure 2′ in depth, two solid-core doors are used for these rooms. Weather stripping on the corridor door reduces sound transmission through cracks and the surfaces between doors are perforated hardboard over blanket insulation.

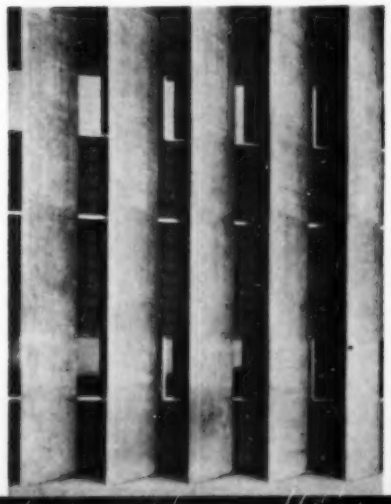
The recital hall has been designed to provide a reverberation time of 1.15 seconds for frequencies of 512 to 4096 cycles —rising to 1.40 seconds at 128 cycles. The only sound absorption is in the seating; each unit was designed to match the absorption of the occupant. Chairs have a rating of 3.54 sabine units at 500 cycles. Ceiling is suspended gypsum lath and sand-finish plaster. Behind the grill concealing the organ pipes, louvers close automatically when the organ is not in use to form a hard reflective surface.

Walls of instrument (basement) and choral (second floor) labs are lath and plaster on wood furring. Design reverberation time for the instrument lab is 1.2 seconds at 512 to 4096 cycles—increasing to 1.4 seconds at 128. Reverberation time for choral lab is 1.1 seconds. Ceilings are suspended lath and plaster.



Primary components of School of Music's west elevation are glass block; double-glazed, clear-vision window strips; and limestone, vertical sun-control louvers. Interior view (below right) *was taken in library on second floor.*

Photos: Stanley Color Lab., courtesy Kimble Glass Company; Ingvard Eide.



Typical installation of two doors between classrooms and corridor (above left). *Contributing to better sound control in the administration office are fissured- and perforated-mineral acoustical tiles, air diffuser, and glass-block wall* (above).

Splays around curved wall of instrument lab (left) *prevent concentration of sound. Panels of perforated hardboard backed with 2" of insulation are scattered about the wall and ceiling to provide optimum reverberation.*

Recital hall walls (below) *are ⅜" birch plywood on two layers of 2" x 2" wood furring. First furring layer is fastened directly to masonry walls at regular intervals; second is applied to first at intervals varying from 18" to 36", permitting panels to resonate over a range of frequencies.*

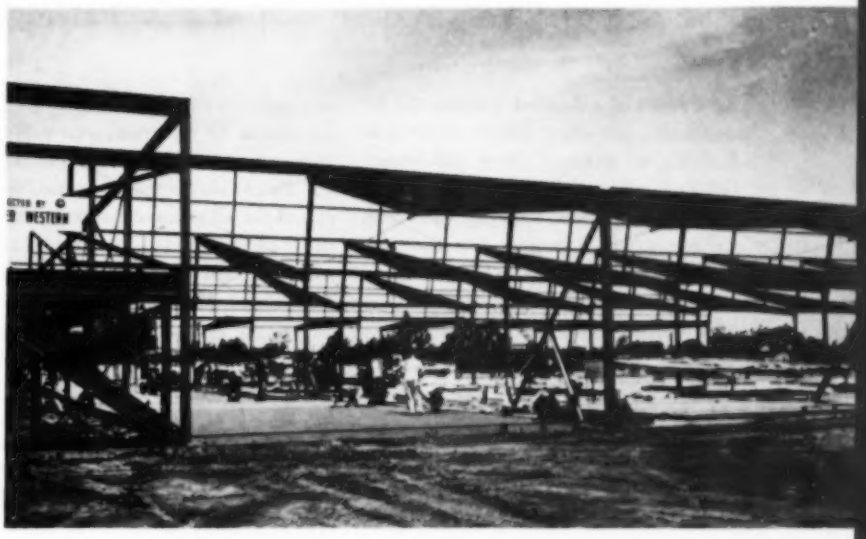
Photos: Ingvard Eide (above right); Stanley Color Lab., courtesy of Kimble Glass Company.

tapered-steel girders on 6″ columns prove least expensive for 30′ x 60′ bays

Minneapolis-Honeywell's Los Angeles plant (Appliance Controls Division) became inadequate and a new, expandable, easily maintained manufactory with plenty of natural light was needed. To be completed by increments on a "pay as you go" basis, the first element to be built was the machine shop.

The shop's most interesting structural feature is the roof framing, composed of tapered-steel girders (*right and below*) and open-web trusses. With this system, the designers were able to obtain 30′ x 60′ bays at very little more cost than alternate schemes for 20′ x 40′ bays. Compared were welded north-light rigid-frame gable bents, 60′ steel trusses, precast-concrete bents, and prestressed-concrete beams. Wood construction was not considered because of fire ratings.

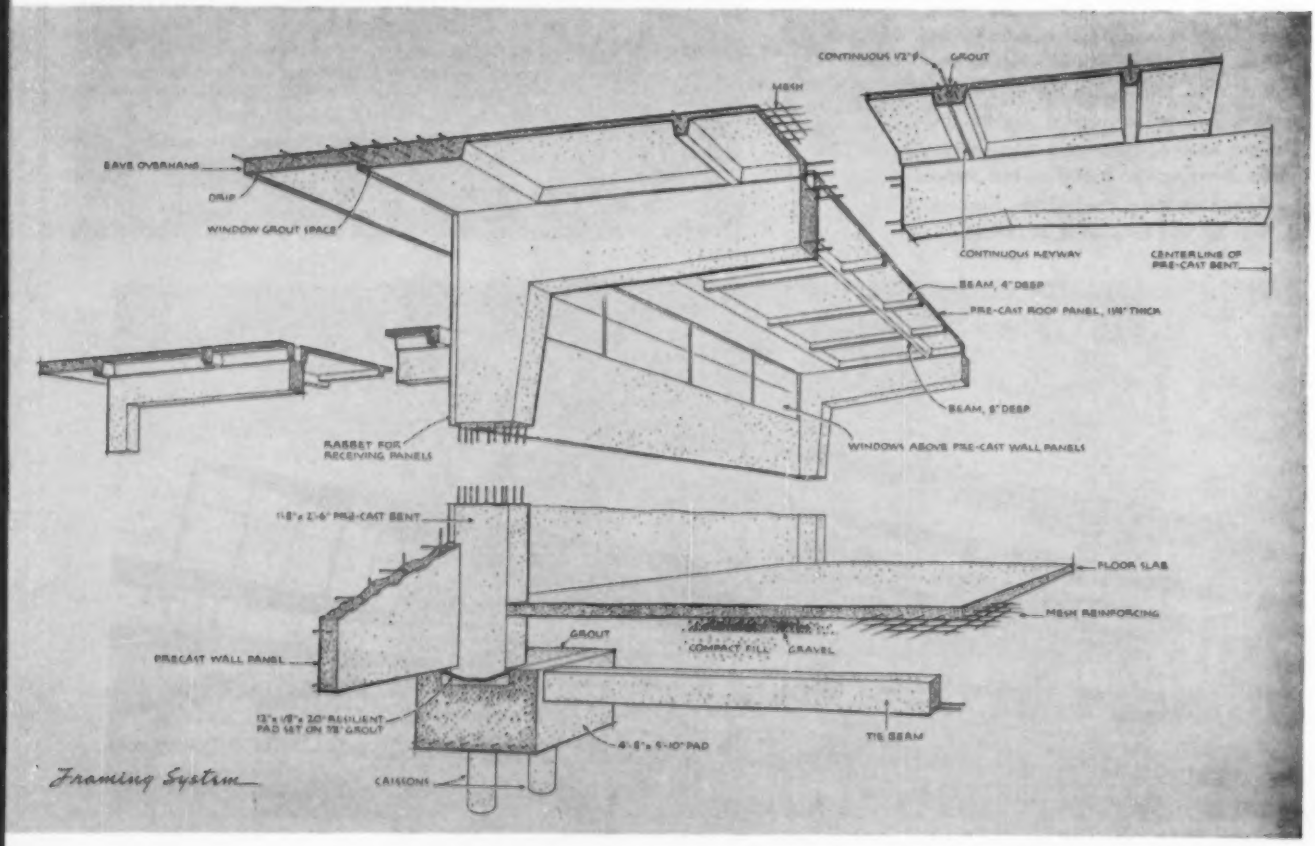
Exterior walls are 5½″ precast-concrete panels that can be removed easily as the plant expands. Earthquake forces are resisted by a system of welds in the steel decking that makes the entire roof decking behave as a rigid diaphragm. The precast-concrete panels act as earthquake shear walls. Architect and structural engineer were, respectively, Kenneth H. Neptune and Richard R. Bradshaw.



Designed to support a total load of 22 psf (12 live/10 dead), each tapered-steel girder has the following dimensions: length, 60′; mid-span depth, 42″; depth at ends, 16″; flange width, 10″; flange thickness, ⅝″; web thickness, ¼″; weight of girder, 3000 lb (1.7 psf average). All 36 tapered-steel girders required for the machine shop are supported by 6 WF 15.5 columns.

precast-concrete rigid-framed bents help reduce cost of naval structure

As a result of a detailed study of the design and engineering factors involved in building a standard Navy subsistence building, one will be constructed at the Naval Amphibious Base at Coronado, California, at 30 percent less than the usual cost. Albert C. Martin & Associates, Architects and Engineers, working with the 11th Naval District Public Works Office of Capt. A. I. Flaherty and PWO Design Chief William J. Bobisch, will be able to realize these considerable savings through such provisions as the following (*illustrations below*): (1) Both sections of the T-shaped structure will be of precast-concrete rigid-frame bents spanning 75′, spaced 20′ on center, with waffle-type precast-concrete roof panels (12′ x 20′). (2) Pan forms for the roof panels will be reused for all types of panels with a few minor exceptions. (3) Precast wall panels will be erected by the tilt-up method. (4) The 40-ton bents are designed to be picked up by their edges, utilizing the bolts in tension instead of shear, with the pickup device clamped to concrete by friction. (5) In the design of the connections between wall slabs and bents and between bent bases and foundation, there are two interesting points. To facilitate erection, a 1″ tolerance of dimension is provided at the connection of bents to wall slabs. In order to obtain a compact and uniform bearing on the footing, resilient base plates will be used in the footing pockets to receive the bent columns. After the frames are erected, the footing pockets will be grouted full. (5) Finally, all welding will be held to a minimum—only to connect two precast elements such as the lower roof to the walls, as dictated by seismic design. The final cost of the subsistence building including all galley equipment will be approximately $17.20 per square foot.

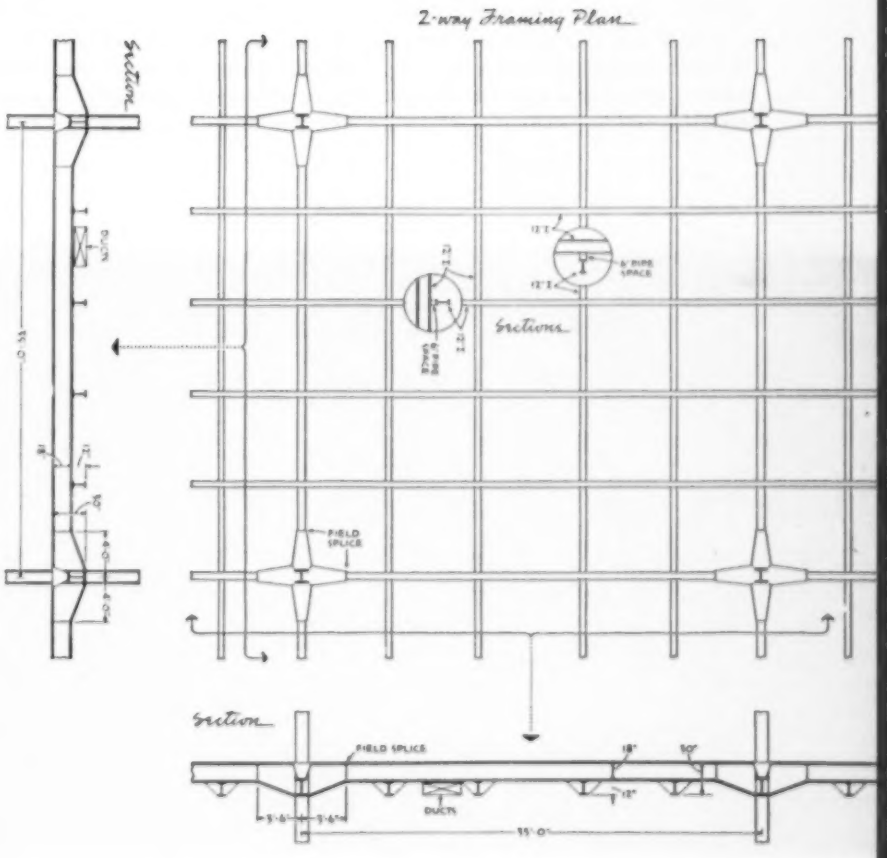


two-way steel framing proposed for multiple-story shopping center

Shopping-center department stores, as well as laboratory buildings, are frequently from two to four stories high and often their mutual requirements are large spans (30′ to 40′); flexibility for loading conditions, alterations, openings, etc.; adaptability for mechanical and electrical distribution; and sprinkler systems. Cantilevers are mandatory at perimeters of shopping-center buildings to protect window displays and pedestrians from sun and weather. Steel framing is inherently suitable for these requirements, yet girders in the usual one-way beam-and-girder system block the passage of mechanical services. This proposed framing places continuous beams and girders in two directions, as well as at different levels, and permits the installation of ducts and pipes in any direction without girder interference.

The beam grid is similar to a continuous two-way slab; column heads with two-way haunches develop continuity, stiffness, and resistance for the girders. Cantilevers at perimeters will reduce torsional restraint in the perimeter girders. Lateral bracing of beam and girder flanges is provided by the floor construction and at grid intersection. In the region of negative bending, the bottom flanges of the lower members are stayed by simple braces. Butt-welded splices for the straight continuous beams should be located approximately at the inflection points. Girder haunches, shop-welded to columns, are field-welded to the girders. The available depth, equal to the girder plus the beam depth, is ample for negative moments. About 10 percent of the steel and 4″ of floor height can be saved and the grid framing simplifies the work of all trades. Cost compares favorably with conventional construction and includes several added advantages as a bonus.

Henry H. Werner, Consulting Engineer, Long Island City, New York, has proposed this framing system.



NEW DIRECTIONS IN THERMAL INSULATION: PART V

by Groff Conklin

vapor barrier installation

During all of the preceding discussion (Part IV, March 1954 P/A), reference has been made to the problem of assuring proper installation of vapor barrier materials. The matter of obtaining good workmanship is one that can well be left up to the architect or builder. If the interest in obtaining a good job is acute, inspection will be constant and vigilant and errors such as torn membranes, batts or blankets wrong side to, and inadequate jointing at sills, plates, around windows and doors, and at ceiling openings will be eliminated.

There are a few special detailing problems concerning vapor barrier installation that are often not sufficiently recognized, however, and the sample details shown (*Figures 1 through 5*), together with their descriptive captions, will perhaps serve to call to mind some of the important areas where special care in supervision of installation is necessary.

In particular, attention is drawn to a detail on the installation of a vapor barrier over exposed areas below the flooring and above the sill (*Figure 1*). This part of the barrier (and the insulation) must, in most instances, be put in place *before* the subflooring is laid—a detail that is very rarely attended to in most

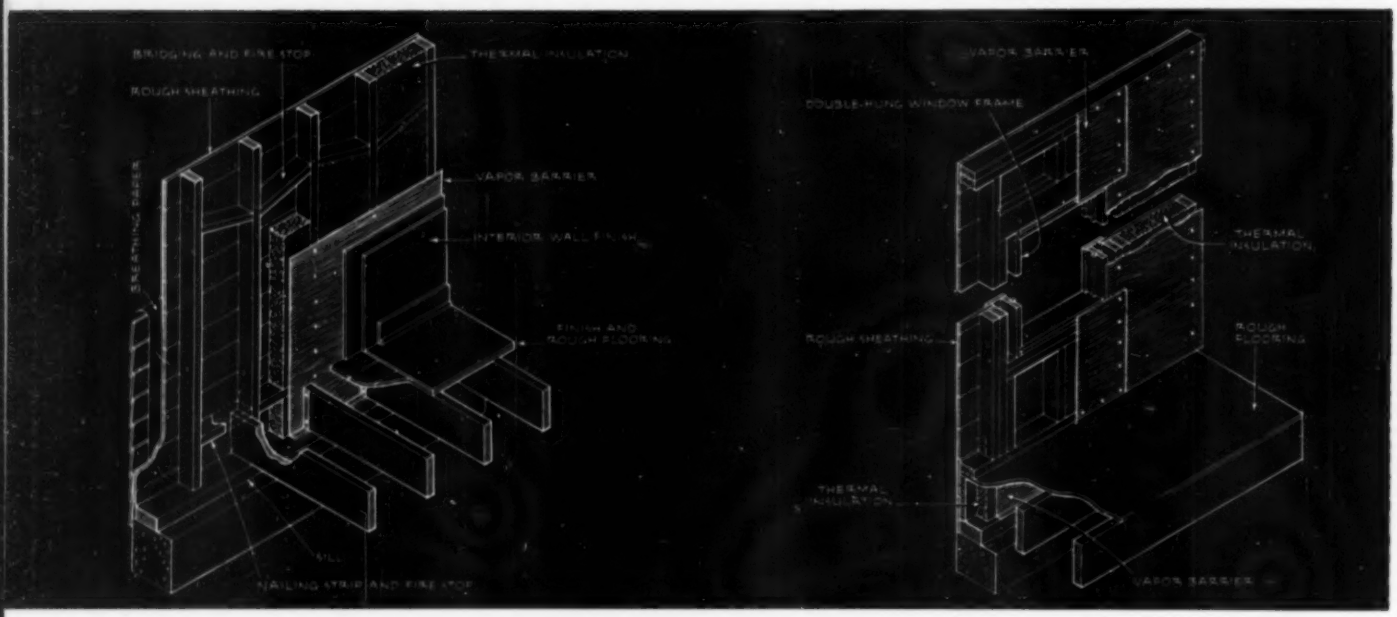


Figure 1—Vapor barrier at side wall where joists abut. The vapor barrier must always be continued down to the sill and nailed or stapled firmly so that no moisture leaks can occur at that point. Where joists abut the wall, it is necessary to reinforce the vapor barrier between the joists by nailing or stapling it to a nailing strip placed across the stud space just at the tops of the joists and then carrying it down to the sill.

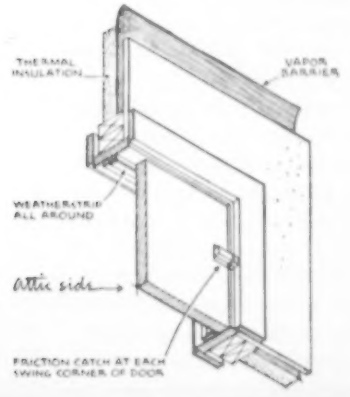
Figure 2—Insulation and vapor barrier around window. Around windows of all types, both insulation and vapor barrier should cover all parts of the frame—sides, top, and bottom. Insulation should be packed into all spaces except those in double-hung windows where the sash weights will have to operate, and all spaces without exception should be covered with a good vapor barrier material.

homes but can be extremely important in very cold and dry climates.

(A) Timing of Installation. It is of primary importance for the final effectiveness of the vapor barrier that the architect and the builder both make it a strong point that special trades, including plumbers, electricians, ductwork tinsmiths, and others who have to install special materials in the walls or ceilings

Figure 5—Protection around doorway leading up to unheated attic space. An excellent method of achieving a good vapor barrier is to weather-strip the door. The door itself should be thickly painted with a vapor-resistant gloss or semigloss paint; sides of the stairwell leading upward must be insulated and provided with a good vapor barrier.

Illustrations adapted from *Condensation Control in Buildings*, HHFA, 1949.



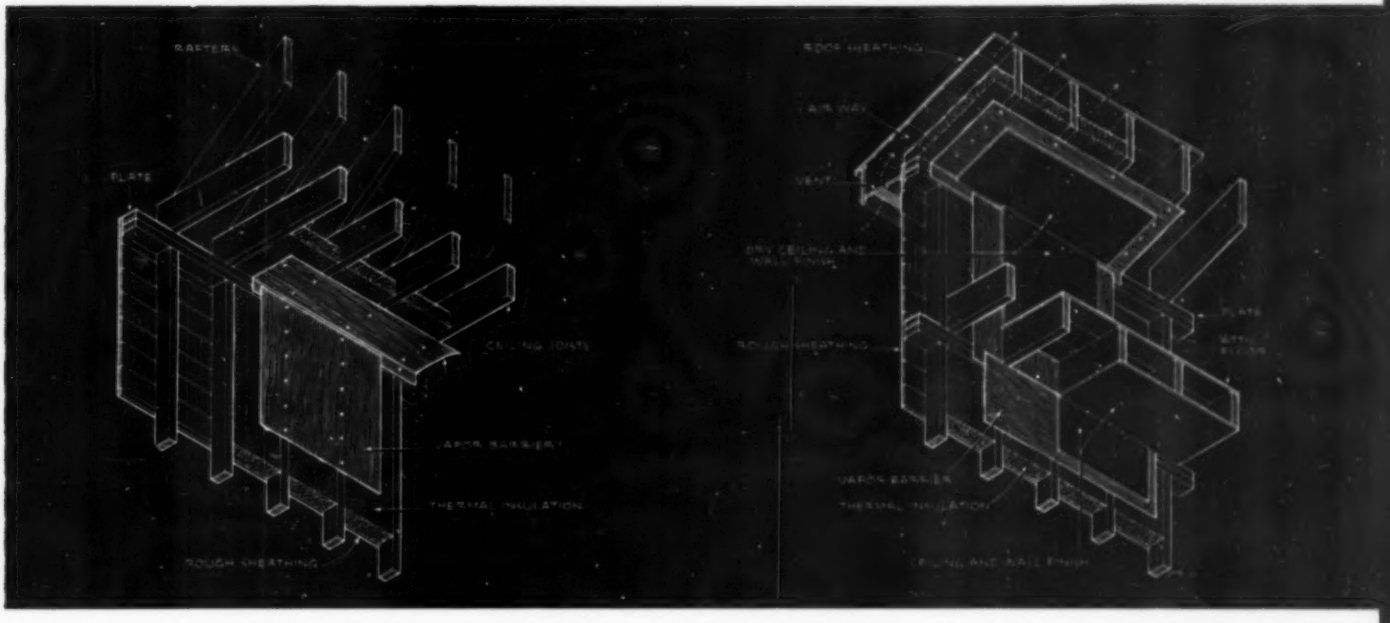
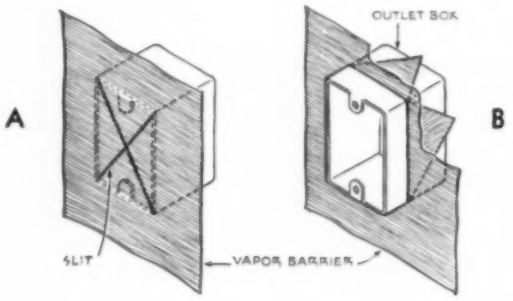


Figure 3—Vapor barrier at junction of attic floor, roof, and side wall in unfinished attic. Vapor barrier is extended from top of wall and continued along underside of attic floor before ceiling lath is applied. Note lap made on wall plate.

Figure 4—Vapor barrier at junction of side wall, attic floor, and attic roof where attic is to be finished for occupancy. Insulation should be installed so as to permit air circulation behind it. A good vapor barrier should cover the insulation at all points, as well as any open parts in the wall or roof. Note eave vent. HHFA recommends a dry wall finish in the attic to prevent damage to the vapor barrier.

Figure 6—Fitting vapor barrier and insulation around electric-wiring outlet box. Vapor barrier should be laid over box then stapled to the wood structure. In this position diagonal cuts can be made with a sharp knife (A) *and the remaining paper can be folded* (as at B) *and pushed tightly in around the box's sides. Blanket insulation with a vapor barrier on one side should be placed around an outlet box in a similar manner.*



finish their roughing-in before the insulation and the vapor barrier are applied. This is a basic necessity. A well-trained mechanic whose job it is to apply insulation or vapor barriers, or both, will always make sure that the materials surround or cover all pipes, ducts, and utility lines (*Figure 6*). A plumber or an electrician—and even more commonly, a tinsmith—never even thinks of repairing the cuts into a vapor barrier or an insulation-plus-vapor-barrier combination that he has to make to do his job.

Therefore, the work should be scheduled so that the insulation and the vapor barrier, whether separate or combined, are put in place *as late as possible* in the schedule. Not only will this avoid necessary damage by other trades, but it will minimize the danger of tears in the membrane resulting from materials handling or from carelessness on the part of people in the house. Ideally, the lath or wallboard should be put up immediately after the insulation and vapor barrier, since it is only by following such a schedule that a truly effective installation can be assured.

(B) Weather and Vapor Barrier Installation. There is another awkward headache that often confronts architects in connection with the installation of insulation and vapor barriers; this is the matter of *season of building*. L. V. Teesdale of the Forest Products Laboratory, who was one of the first men to analyze the whole problem of building condensation and suggest cures for it, made the following statements during the BRAB Conference on Condensation Control:

"In buildings plastered in cold weather, the vapor barrier will become wet. Some materials, particularly laminated papers, are likely to disintegrate under prolonged wetting." Also, in a more informal vein, he said: "There is nobody, I feel, who questions the value of paint as a vapor barrier. However, at the time we start to build a house we do not know when we are going to finish that house. . . . If we went into the fall and into the winter before that paint was applied, we then could have our moisture passing through the wall, our wall would be unprotected, and that would be more or less disastrous to the first coat of paint."

Putting together these two remarks, from a man who has probably had as much experience with defective vapor barriers as anyone in the country, we come up with an easy-to-say but often very hard-to-enforce rule: ***build only during warm weather!*** Otherwise the structure may become pretty thoroughly saturated with moisture before the vapor barrier is applied, and these barriers, whether membrane or paint, may be seriously damaged.

It is, of course, often impossible to follow this rule in large subdivisions and other low-cost housing developments, but in the individual architect-designed-and-supervised home, it can be managed by careful scheduling. Particularly in regions of very cold winters, it is a factor that very definitely should be considered.

(C) The Problem of Built-up Roofs. Tyler S. Rogers of Owens-Corning Fiberglas Corporation, in a recent article[1] on built-up roofs with no hung ceiling below, has made this point of the importance of installing vapor barriers and insulation in dry weather even more strongly when it comes to protecting these materials in flat or shed roof construction. Although his remarks specifically dealt with industrial and commercial jobs, they apply just as pertinently to built-up roofs in residences.

Rogers' point is that it is common practice to rush through the roofing work as fast as possible, despite the fact that "however the specifications are worded, the requirement that the deck be dry is almost universally used." The urgency to complete the closing-in results in the ignoring of this specification with great frequency, and the result is leaking, blistered vapor barriers and saturated insulation, rotting plaster, and ruined ceiling finishes.

His solution of the difficulty seems on all counts to be a reasonable one. Inasmuch as it often is extremely important to get the roof deck covered-in as soon as possible, he suggests doing the work in two stages. "The vapor barrier, in itself a two-ply roof, is installed and glaze-coated as one operation. It can be applied fast. If it has to be applied over a damp or wet deck, blisters that develop can be repaired before the second stage of the job is done. The vapor seal acts as a service roof until the building has been well dried by ventilation, and all other trades have completed their work above the roof level. Later the roofer applies the insulation and roofing felts without the pressure of time and adverse weather forcing him to take chances. He

[1] Architectural Forum, *August 1953, p. 148.*

Blister Resistance of Various Paints*

Paint	Average % effective blister resistance
Regular house paint, self-primed	52
House paint over zincless type primer	72
House paint over chalk-resistant rutile TiO_2/leaded ZnO/Mg. Sil. type primer at 33% P.V., (P-2)	65
House paint over same primer with 40% P.V.	71
Alkyd stain resistant paint I, self primer	99
Alkyd stain resistant paint II, self primer	100

* From paper presented by W. G. Vannoy of du Pont in the BRAB Conference Report No. 4, **Condensation Control in Buildings**, p. 46.

need anticipate no further damage by other trades. His savings in this respect will more than make up for doing the job in two steps."

In the case of smaller buildings such as moderate-priced homes, the two-step operation may not be feasible, particularly if the whole job is small enough to do in one day. In that case, the architect should require that the roofer not come on the job until there has been a spell of good weather and the roof deck really is dry enough to install vapor barrier, insulation, and roofing felts without the danger of moisture damage.

(D) The Problem of Exterior Finish. Most of the early evidences of condensation damage are seen in the exterior paint film. Certainly this is the source of most of the home owner complaints. The result is that the paint industry has become deeply interested in the whole condensation problem. Sometimes men in the industry tend to recommend practices that will protect the paint, regardless of what such practices may do to the wall or its inner surfaces.

Among the suggestions that have been made by members of the industry are(in addition to paint or membrane vapor barriers): backpriming of siding, the development of more permeable outdoor paints, and wall ventilation. The first two are discussed below while the last is analyzed in a later section on ventilation in general.

The BRAB Conference developed a few general ideas that may serve as guides in specifying exterior paints and their application. Some are positive recommendations; others are suggestions based on fairly limited testing which, nevertheless, showed excellent results.

The first recommendation is that backpriming of siding is an unnecessary expense and a hazard to the wall cross-section, since it essentially involves placing a vapor barrier on the wrong side of the wall. It may help to keep condensed moisture out of the siding and thus reduce damage to the exterior paint but the moisture it bars will obviously have to stay in the wall, where it can cause a great deal of trouble. Edge-priming, on the other hand, is very important and should always be done, particularly around dormer checks, windows, etc.

The next suggestion is that no prime coat containing zinc oxide or leaded-zinc oxide should be used. W. G. Vannoy of E. I. du Pont de Nemours & Company (Inc.), presented a paper on exterior paints at the BRAB Conference which contained the following statement: "Zinc oxide (and) leaded-zinc oxide (are) detrimental to the adhesion characteristics of certain films as tested under adverse moisture conditions." Dr. J. S. Long of Devoe & Raynolds has stated as follows:[2] "Next to the bare wood use *an undercoat designed specifically as an undercoat.* This involves the feature that no zinc oxide may be present; hence, no zinc soaps. Zinc soaps are soluble in water, so water coming out from the inside, when it arrives at the interface between the wood and paint, dissolves the zinc soaps and the paint becomes loose."

A third rule was summarized by E. J. Dunn Jr. of National Lead Company as follows: "The moisture vapor permeability[3] of the outside wall paint should be higher than the inside wall paint. It would seem that a lesser amount of paint on the outside and more paint on the inside would aid this problem."

This leads to two separate ideas. First, exterior paints should be applied as thinly as possible. Indeed, Long, at the Conference, made some very strong statements about exterior painting. As he put it, "This business of putting on two coats of paint all around the house is silly . . . you pile it on year after year because some stupid painter told you he wanted to make more money on you, and you put on two coats of paint. We should get this on a more rational basis." He then made an interesting suggestion, which is to put two coats on the sides of the house that "get a beating" from the sun and a single coat elsewhere. Whether this is over an undercoat or not, Dr. Long did not make clear but he does mention the recent development of one-coat paint for exterior use.

The second idea about the permeability of outdoor paints is that paints with a higher inherent permeability should be used on the outside, provided that this added permeability does not also involve poor wearing qualities. In this connection, Vannoy of du Pont presented some very interesting data on the blister and stain resistance of various paints as a fac-

[2] *Private communication.*

[3] *Considerable confusion exists concerning the use of the terms "permeability" and "permeance" in describing the rate of water vapor transmission through materials. An effort is being made to introduce "permeance" whenever reference is to a material of known thickness and to reserve "permeability" to describe vapor transmission rates through a 1" thickness of a material. However, since this definition of "permeance" is not yet widely accepted, as indicated by Dunn's use of "permeability," the latter term appears generally throughout this series.*

tor of their permeability rating. When compared with certain special stain-resistant paints, regular house paint showed up rather poorly from the staining point of view. Some test results on the blister resistance of different types of paints and paint application are shown (*Table*). The alkyd stain-resistant paints are obviously superior to regular house paint, according to the table. The results are those of a controlled series of tests, of course, and do not necessarily indicate to the full the actual performance of the paints when applied to the average house. Neither do they indicate how such paints would act if applied over existing coats of paint, so that it would be unwise, until further test results are made known, to recommend such paints for repainting purposes.

However, the tests made thus far do indicate that the self-primed alkyd stain-resistant exterior house paints are superior to other types, and therefore it would seem reasonable for architects to specify these paints for outdoor finishes and to require that they be self-primed.

It is true that the actual functioning of these paints from the aspect of durability is not yet clearly established. There is some feeling that their very permeability may possibly shorten their life under actual service conditions. This, coupled with the fact that these alkyd-resin outdoor paints may not be widely available as yet, since they are in more or less an experimental state, may make it necessary for the time being to continue to specify high-quality lead-free finish paints over zincless primers, as the best combination now on the market.[4]

In connection with the discussion of high-permeable paints and paint applications, the point was made at the Conference that high permeability may increase the danger of damage to the nails and other metal parts of the wall by causing them to rust. It is felt, however, that the problem will not be particularly important if the architect makes certain that all nails are set and the holes are well-puttied, and that other metal parts are made of nonrusting materials, as in the case of window and door flashing, etc. Of course, too, aluminum nails could be used to put up siding or shingles, thus eliminating the rust problem at the start.

Other suggestions about the application of exterior paints brought out during the BRAB Conference were: never to use siding that has not been thoroughly dried before nailing up; and never to paint it while it is damp after a rain or snow storm. The moisture that will be sealed in if the siding is painted while damp may force its way out through the new paint coat, causing stains and blisters if the situation is really serious.

It may be that these suggestions sound somewhat picayune in some instances, and overly troublesome in all. This is often the case with any method of construction that is performed with full attention to the many long-range problems of maintenance and depreciation that often deteriorate a structure. For good performance over a long period of years such precautions are obviously important. If they are taken, the results of condensation as they affect the exterior paint surfaces will be greatly minimized.

Masonry wall finishes do not present a serious problem in controlling wall condensation since most masonry materials are more or less vapor permeable and the finishes commonly applied to them (except when oil paints are used over brick) are believed to be permeable to vapor though highly resistant to water penetration. Furthermore, condensation occurring on the cold side of insulation in a masonry wall cannot, in most cases, do serious damage since the masonry materials are not ordinarily subject to decay. Instances have been known when wood furring strips have been damaged by such condensation, however, as well as joists butted or countersunk into a masonry wall, so that it will pay to make sure that the exterior finish of the masonry is properly vapor permeable so as to permit the escape of condensed moisture from the wall during cold weather.

Brick walls, either 8″ solid or face brick with an 8″ concrete masonry backup, are excellent for protection against water penetration and for vapor permeability, provided the brick, the mortar, and the workmanship are of Class A quality. However, for protection against efflorescence due to the varying quality of many bricks, as well as for assuring moisture proofness together with vapor permeability, the use of one of the clear silicone water repellents now on the market may be advisable. These materials, which are invisible after application (they are *not* glossy), provide an extremely durable coating that keeps wind-driven rains, melting ice, and other forms of water

[4] *E. M. Fisher, Technical Editor of* National Painters Magazine, *has this to say about lead-free, outside white house paints in his valuable little book* What You Should Know About Paint: *"Perhaps the major performance difference between lead-free paints and those containing lead is that in industrial areas, or in areas near rivers, waters, or swampland, the lead-free paints will not become discolored and darkened by the presence of hydrogen sulphide fumes in the atmosphere. They will stay as clean and bright in an industrial atmosphere as a lead-containing paint will in the segregation of pure mountain air."*

from entering the brick, yet at the same time freely permit the passage outward of any moisture vapor that may originate within the house. Though relatively new on the market, these materials have already proven a boon in areas where efflorescence is a serious problem. They will not, of course, prevent a poor-quality brick from deteriorating under adverse weather conditions, but they will keep water out, even with such bricks, for upwards of ten years without the necessity of renewing the coating.[5]

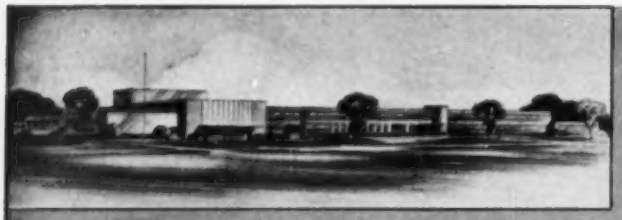
More porous masonry walls, such as those made out of cinder or concrete blocks, obviously need exterior surfacing treatments to keep them from absorbing water. As is generally known, a portland cement paint formulated according to Federal Specification TT-P-21, Type 2, which contains no less than 80 percent of portland cement, will provide a satisfactory seal against the entrance of water in any form into the exterior surface of a masonry wall from the outdoors. The vapor permeability of this paint, from vapor originating inside the structure, is not given in any of the technical reports available to the author but it can be assumed that it is moderately satisfactory. The most useful reference for data on exterior finishes of porous masonry is the National Bureau of Standards' BMS Report 110, *Paints for Exterior Masonry Walls*, 1947. The American Concrete Institute also has some valuable reports of test data, in particular the paper by Copeland and Carlson, *Tests of the Resistance to Rain Penetration of Walls Built of Masonry and Concrete*.[6]

[5] *See paper by F. O. Anderegg,* Progressive Architecture, *May 1951, for details.*

[6] *Available from The American Concrete Institute, 18263 W. McNichols Rd., Detroit 19, Mich.*

(E) The Problem of Wall Sheathing Paper. One frequent recommendation heard these days is that when a sheathing paper is to be used over ordinary wood siding, it should be of the "breather" type, i.e., water-repellent but with a fairly high vapor permeability. The only trouble with such papers, according to good authority, is that they deteriorate faster than others since by "breathing" they permit moisture to get in and through them. This moisture may cause the paper to fail in the long run, with the result that the sheathing itself will become saturated with moisture, thus leading to decay of the wood and possible damage to the insulation and the interior finish of the wall. Provided the vapor barrier of the dwelling is effective, the use of a breather paper is not considered advisable by many authorities since it not only lets inside moisture out but also permits outside moisture to get in. However, a vapor barrier type of paper should *not* be used. A standard water-resistant sheathing paper, preferably an asphalt-saturated felt, running to about 70 lb per 500 sq ft, should be used. Glossy-coated asphalt felts are not recommended since they are too vapor-resistant for this purpose.

On batt or blanket insulation, of course, the paper covering the outer or "cold" side (if any) should be a breather paper permitting at least five grains of moisture to pass through per sq ft per hr per in. of mercury. The reason is that if any vapor does get into the insulation through holes in the vapor barrier, it should be permitted to escape so that it will not saturate the insulating material and cause it to deteriorate. Certain types of insulation have capillarity, though the mineral types have none.



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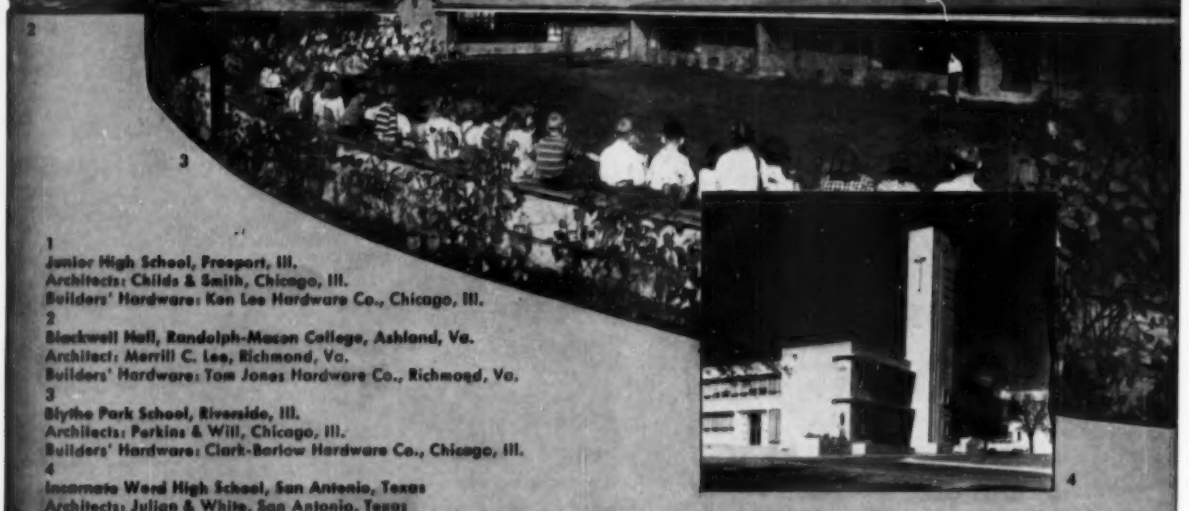

1
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Architects: Childs & Smith, Chicago, Ill.
Builders' Hardware: Kon Lee Hardware Co., Chicago, Ill.

2
Blackwell Hall, Randolph-Macon College, Ashland, Va.
Architect: Merrill C. Lee, Richmond, Va.
Builders' Hardware: Tom Jones Hardware Co., Richmond, Va.

3
Blythe Park School, Riverside, Ill.
Architects: Perkins & Will, Chicago, Ill.
Builders' Hardware: Clark-Barlow Hardware Co., Chicago, Ill.

4
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by Ben John Small

spec small talk

par-infiltration

Let's talk weatherstripping, shall we? The Weatherstrip Research Institute (how does he unearth these institutes?) has adopted the term par-infiltration as a substitute for reference air infiltration for the purpose of establishing an equality in value or common value for the evaluation and comparison of results. The University of Minnesota Institute of Technology tells us that:

1. The use of par-infiltration provides a clear and simplified method for the comparison of the variable factors affecting the air infiltration through windows.
2. For nonweatherstripped windows, the air infiltration through well-fitted windows is approximately one-half the air infiltration through average fitted windows, whereas the air leakage through a poorly fitted window is 50 percent greater than through an average fitted window.
3. The optimum groove clearance which will permit reasonable ease of sash movement was found to be 0.025 inch and therefore was selected as the recommended groove clearance for rib-type metal weatherstrips.
4. The installation of rib-type metal weatherstrips on windows reduces the difference in air infiltration for the different fitted windows. The air infiltration through nonweatherstripped windows is approximately six times that of the air infiltration through weatherstripped windows.
5. Locking of nonweatherstripped windows had a considerable effect in reducing air infiltration; however, for weatherstripped windows this difference is very small.
6. The difference between air infiltration and exfiltration is negligible for weatherstripped windows, whether locked or unlocked. However, for nonweatherstripped windows the exfiltration is considerably higher than the infiltration with a greater difference occurring for the unlocked than for the locked windows.
7. Packing strips should be installed in back of weatherstrips when weatherstripping poorly fitted windows. For well- or average-fitted windows, the use of packing strips is unnecessary.
8. The shrinkage of a window has very little effect on the infiltration rates for weatherstripped windows as compared with nonweatherstripped windows.
9. The air infiltration rate for weatherstripped windows is only slightly reduced by the addition of either poorly fitted or well-fitted storm sash. However, for the nonweatherstripped window there is a considerable effect, with the greatest effect being obtained from the installation of a well-fitted storm sash on an ill-fitted window.

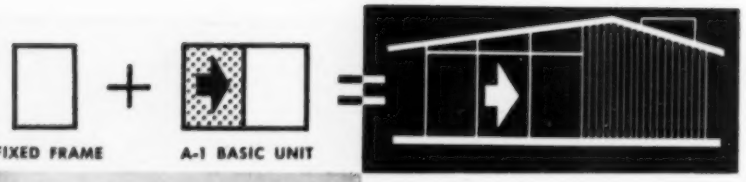
In specifications, I might add that it is well not to use the term, "interlocking spring bronze." Use the terms, "zinc," "bronze interlocking" or "spring bronze." Spring bronze as a rule is not an interlocking strip, but creates weatherseal by contact. The efficiency and durability of zinc and bronze interlocking weatherstrips are equal but bronze is more costly. Bronze should not be used, since most weatherstrips are concealed anyway.

nidger widget

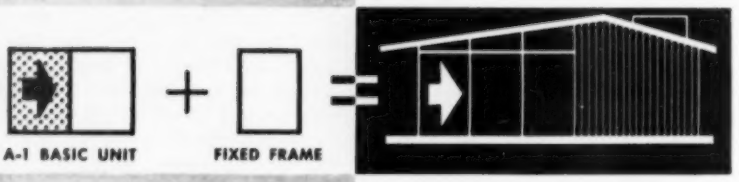
My 32-year 6-month 8-day home is getting a mite weary. The joints in the stonework forming the cellar walls carry on like my garden hose which at the moment is suffering from a severe case of multiple hernias. The stone itself is exfoliating at a shameful rate leaving an architectural effect not unlike acne vulgaris. After much scraping and chipping, I carefully selected the proper tools for applying a heavy coat of my special brew of Trinidad Lake Asphalt and Asphaltic Bitumen. In case you are wondering what I mean by proper tools, step in closer and note the floats for flat work, the small spatulas, the plain and special nidgers, and of course the filleters. I used mastic asphalt because I am inherently conservative having learned that it was used as a waterproofing medium as far back as 3000 B.C. in Babylon. This tale has no smashing punch line because the walls still look like hell and I am compelled to call in professionals for the walls and for my sons' asphaltic clothing and shoes and hands and face and hair.

floor talk

Being in a particularly helpful frame of mind at this moment, perhaps I can clarify a small matter of who makes what resilient flooring as of ten minutes ago. You see it is like this. *Koroseal* is a form of plastic developed by B. F. Goodrich Co. who in turn had Sloane-Blabon do experimenting and sales promotion on this type of vinyl. *Koroseal* originally, as made by Sloane-Blabon, was a costly, flexible material, containing little or no asbestos. Over a year ago, B. F. Goodrich Co., for reasons of its own, decided to name their vinyl plastic asbestos tile *Koroseal* despite their agreement with Sloane-Blabon. Sloane-Blabon didn't fight because Congoleum-Nairn Inc. took them over. *Koroseal*, as made today, is a vinyl plastic asbestos, semiflexible tile. Now then, H. A. Hachmeister is president of the Mastic Tile Corporation of America which owns and operates three plants making, among other things, *Matico*, *Moultile*, and *Hako*, all asphalt tiles. (Don't get caught saying that you prefer *Moultile* better than *Hako* or *Matico* because you are talking about stuff which comes from the same pot.) Thos. Moulding Floor Mfg. Co. which made *Moultile*, doesn't any more. Still with me? Hachmeister-Inc. no longer manufacture their own tile and do not have a tile plant in Pittsburgh despite the statement in Sweets which says "Hako Asphalt Tile and Base as manufactured by Hachmeister Inc., Pittsburgh, Pa." They do have other businesses in that city, such as baking, shortenings, and various chemicals. Hachmeister-Inc. is owned by H. A. Hachmeister. The Mastic Tile Corporation owns no part of Hachmeister-Inc. Congoleum-Nairn Inc. purchased Delaware Floor Products Company as well as Sloane-Blabon. Delaware Floor Products Company and Sloane-Blabon were merged into Sloane-Delaware which does not make a product similar to the original *Koroseal*. Sloane-Delaware does make a vinyl-plastic asbestos tile as well as a vinyl-plastic tile with a felt backing. The original *Koroseal* did not resemble either of these two products. Are there any questions? Before you get the notion that SPEC SMALL TALK is getting smaller, it may be well to point out that Kentile, Inc. has labored and brought forth a fine chart of recommended and not recommended uses of their resilient flooring products. When product manufacturers lay equal stress on where *not* to use their products as well as where to use them, then I am apt to listen with an attentive ear. Kentile, Inc. tells us you can use asphalt tile and vinyl-plastic asbestos tile most anywhere, that cork tile should not be used in residential kitchens, foyers, and basement rooms nor in stores, restaurants, and factories. Rubber tile should be avoided in residential basement rooms, factories, and in or near commercial kitchen areas. There is also, in the same document, some meaty comparative price data and a light reflectance chart. Good resilient stuff. Of course you know that Armstrong Cork Company makes the most complete line of resilient flooring in the industry and their recommendations are realistic with respect to applicability of their products. By the way, I think Armstrong deserves a nod of approval for their excellent technical presentations. Don't you? In a piece of this sort it would be appropriate to talk about carpeting but who can spell *Karagheusian?*



it's all a matter of addition!



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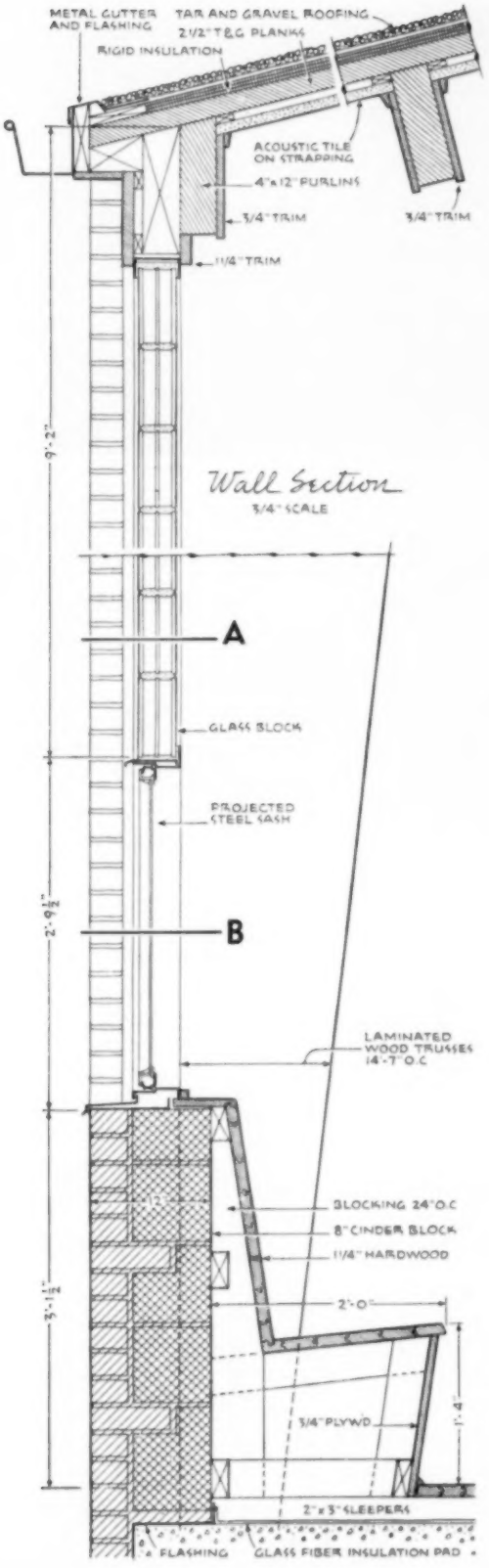
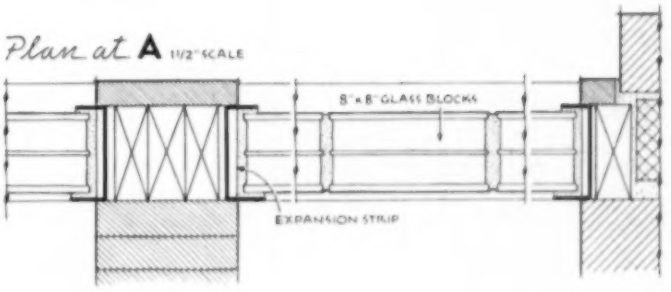
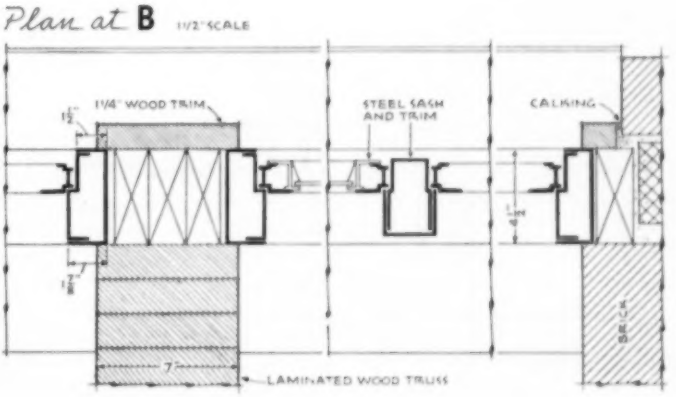
RICHARD GARRISON

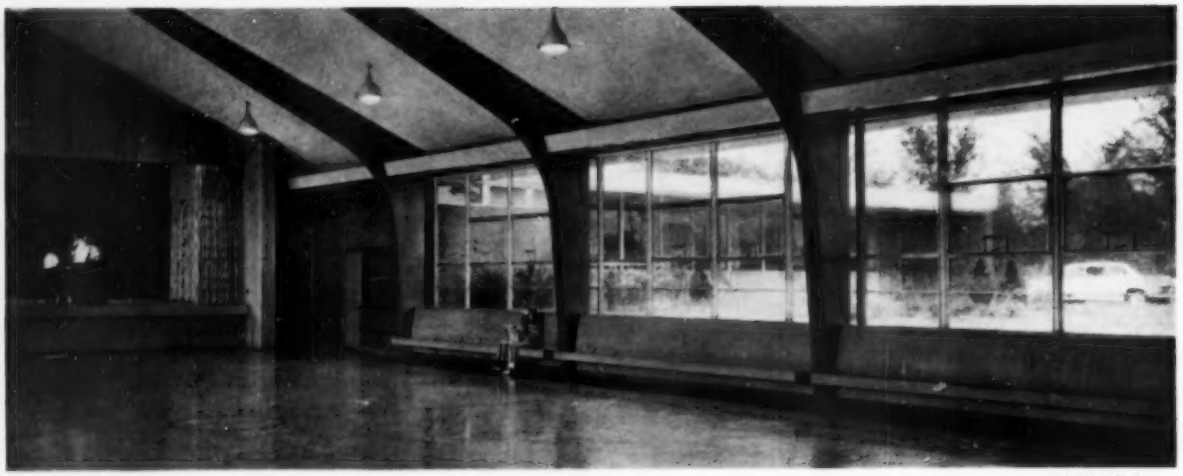




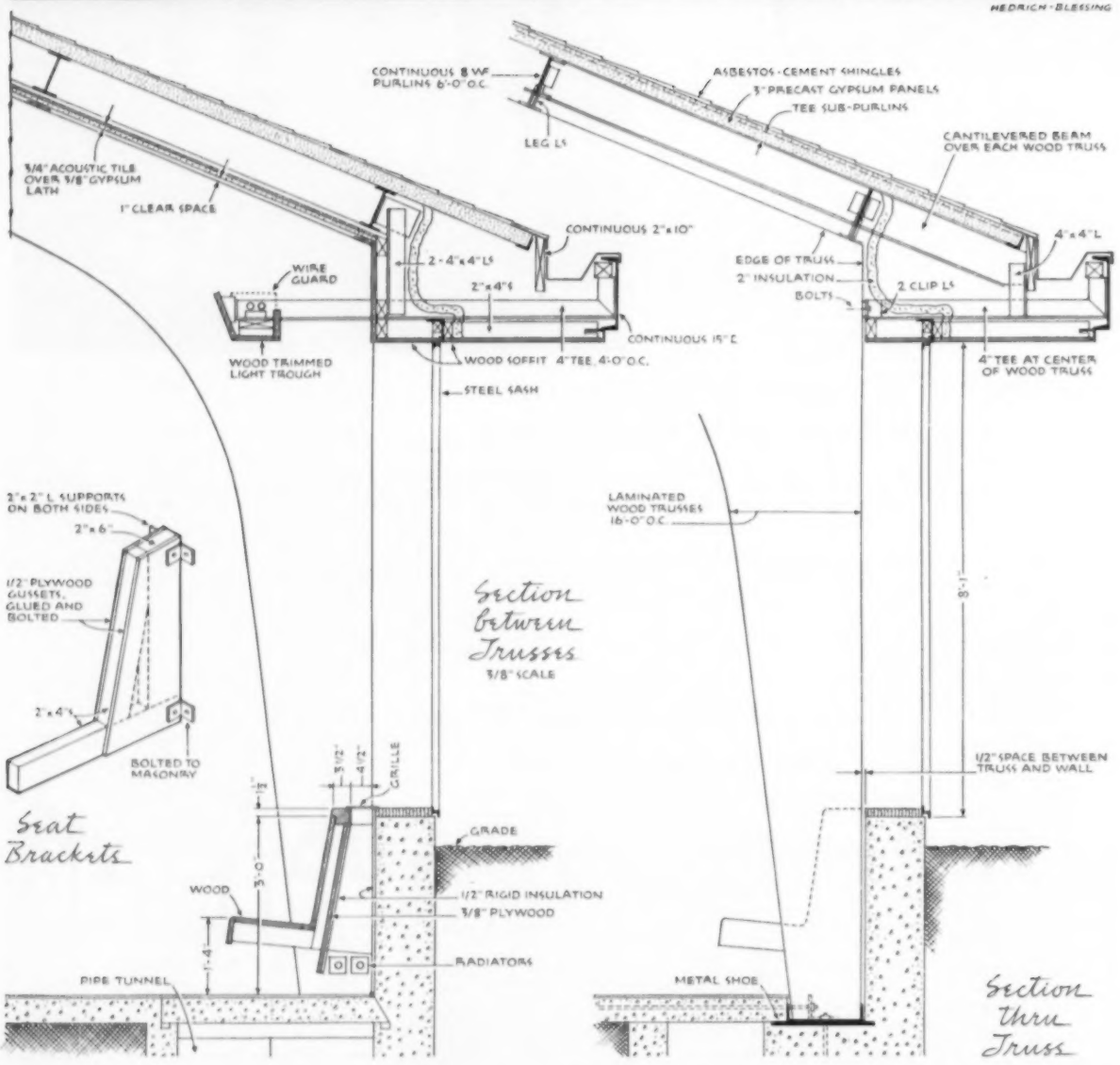


BROAD MEADOW SCHOOL, Needham, Mass.
Hugh Stubbins Associates, Architects

community building: window seat



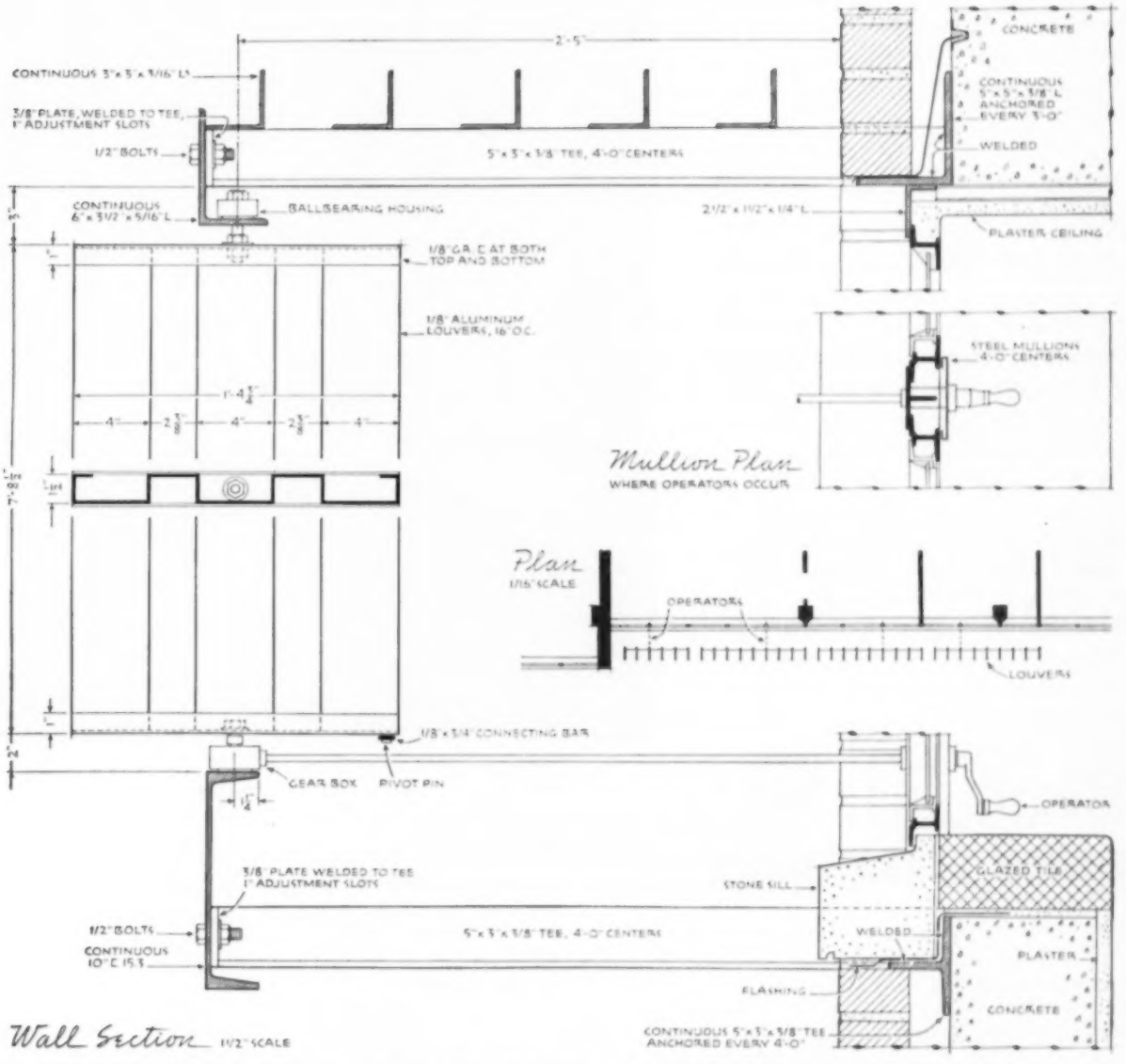
HEDRICH-BLESSING



BEDFORD PARK COMMUNITY CENTER, Bedford Park, Ill.
Perkins & Will, Architects-Engineers

school: exterior sunshade

JACK HOLMES



SCHOOL OF ARCHITECTURE AND THE ARTS, ALABAMA POLYTECHNIC INSTITUTE, Auburn, Ala.
Pearson, Tittle & Narrows, Architects

Borrow color and light

through

a closed door

See how this attractive translucent glass door picks up light and colors in the designer's office beyond—how it lets them through in a lovely blend. Yet it obscures the view for privacy.

The Blue Ridge *Securit** Interior Glass Door has a soft, shimmering pattern on both sides. And the glass is tempered—toughened to take hard usage.

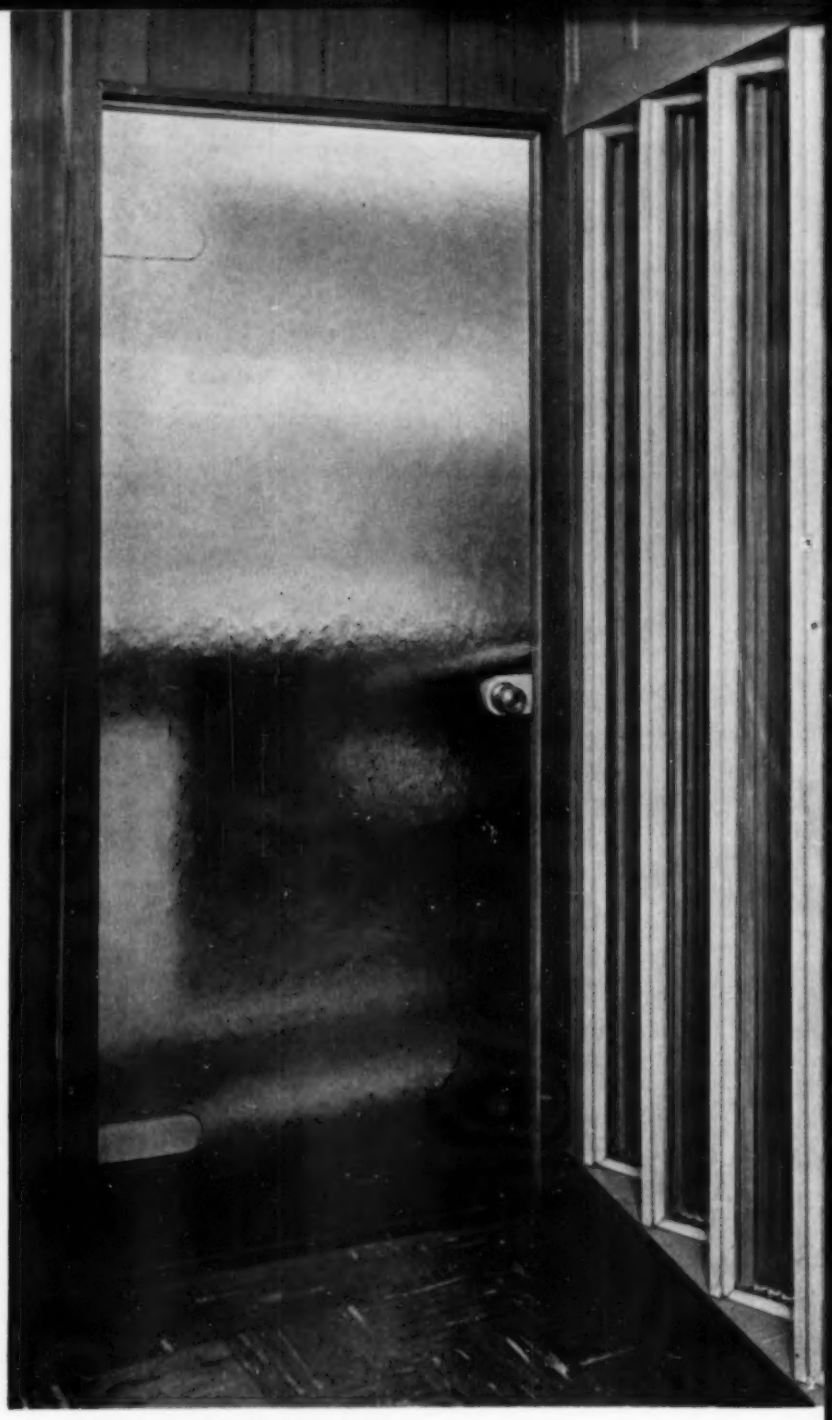
Here is new decorative appeal for offices or homes, for stores or institutions. This lovely neutral glass blends with all colors, combines in harmony with other building materials.

The *Securit* Door is easy to hang. It needs no cutting, no mortising. Distinctive, easily applied hardware arrives at the job with the door.

The cost of this door compares favorably with high-quality doors of ordinary materials—and you save on installation and maintenance costs.

Ask your L·O·F Glass Distributor or Dealer about the *Securit* Door. Look for his name in the phone book yellow pages. Or write Libbey·Owens·Ford Glass Company, Patterned & Wire Glass Sales, B-2244, Nicholas Building, Toledo 3, Ohio.

**



Designer—Richard B. Pollman, Detroit
Architects—Palmquist & Wright, Detroit

securit® L·O·F GLASS

INTERIOR GLASS DOORS

BRIEF DATA

Glass—⅜" thick. Muralex patterned on both surfaces.

Tempered—three to five times stronger than untempered glass of same thickness.

Reversible—can be used right or left hand.

Standard Sizes—

2'6" x 6'8"	2'5 11/16" x 6'7 1/16"
2'8" x 6'8"	2'7 11/16" x 6'7 1/16"
3'0" x 6'8"	2'11 11/16" x 6'7 1/16"
3'0" x 7'0"	2'11 11/16" x 6'11 1/16"

Closers—when specified, the door can be shipped with a Sargent closer or prepared for use with an LCN concealed closer.

For more complete information, see the Securit Door insert in Sweet's Architectural File.

Libbey·Owens·Ford Glass Company
Patterned & Wire Glass Sales
B-2244 Nicholas Building, Toledo 3, Ohio

Please send me your folder, *Blue Ridge Securit* Interior Glass Doors.

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CITY _____ STATE _____

Page Beauchamp college group living areas

Choices this month of living, dining, and recreation areas in sorority and fraternity houses all come from Austin, Texas. Usually we try to choose examples from all parts of the country, but it seemed that these from Texas were by far the best in this category. There are freedom and openness, and a truly contemporary approach to the design. Climate, of course, permits a freer concept, but the complexion of the surroundings and the wide-awake approach to design generally found in Texas contribute to these successful designs.

In some cases, furnishings already owned by the groups had to be used, but not to the extent that they prevented a fresh, new appearance. Color has been used skilfully in all cases, and a straightforward approach to interior design has succeeded in making each of the examples good in its own right, although all have had slightly different emphases in design approach.

Similarity may be noted in the informal, comfortable, homelike appearance of the rooms. One of the interesting details is the handling of trophy displays. In one case, a bookshelf wall incorporates books, phonograph records, and trophies, resulting in an important and interesting focal point of the room. In another, a case was designed to hold all of the prizes, allowing the shapes of the cups to create the design. In the third, K and V brackets hold light birch shelves, creating a decoration for the wall which is adjustable to any necessary height.

Consideration of variety of activities has resulted, in all cases, in planned flexibility. Social areas may be large or small—determined by furniture arrangement and adjustable space division. Over-all sympathetic color in adjoining areas permits transfer of furnishings, with complete harmony.

p/a interior design data

college group livin

data

doors and windows

Doors: gum plywood slab.

Windows: aluminum awning sash/ plate glass settings/ Miami Window Corp., 5200 N. W. 37 St., Miami, Fla.

furnishings and fabrics

Wrought-Iron Seating: Pacific Iron Products, Inc., 1150 E. Pico Blvd., Los Angeles 21, Calif.

Tubular-Steel Chairs: #130, stacking/ designed by Andre Dupre/ Knoll Associates, Inc., 575 Madison Ave., New York, N. Y.

Tables: wrought-iron legs/ Ficks Reed, 424 Findlay, Cincinnati 14, Ohio.

Sofas, Upholstered Sidechairs: designed by Alver Aalto/ Finsven Inc., 870 Madison Ave., New York, N. Y./ Glabman & Associates, Chicago, Ill.

Wooden Armchairs: #65A/ J. G. Furniture Co., Inc., 543 Madison Ave., New York 22, N. Y.

Wooden Sidechairs: #939/ J. G. Furniture Co., Inc.

Webbed-Back Wooden Armless Chair: #92/ Designed by Pierre Jeanneret/ Knoll Associates, Inc., 575 Madison Ave., New York, N. Y.

Tripod Table: #103/ Knoll Associates.

Curtains: "Detour"/ theatrical gauze/ Schiffer Prints, 79 Madison Ave., New York, N. Y./ "Yang & Yin"/ Konwiser, 1 E. 53 St., New York 22, N. Y.

lighting

Lamps: Lightolier, Inc., 11 E. 36 St., New York, N. Y./ Kurt Versen, 4 Slocum Ave., Englewood, N. J.

walls, ceiling, flooring

Walls: gum plywood/ painted brick.

Ceiling: acoustical tile.

Flooring: asphalt tile.

location	Phi-Mu Sorority, Austin, Texas
architects	Page, Southerland & Page
interior designers	New Interiors

A co-ordinated color scheme was used throughout the entire lower floor, and selection of upholstery fabrics was given considerable care. The living room, game room, and patio flow into one another and furnishings are frequently moved from one area to another. Color scheme comprises beige, chocolate brown, pale blue, and bright navy, with accents of flame. A combination of light and dark woods was chosen for the tables, to complement the dark paneled walls. Furniture in the game and dining rooms was carefully selected for flexibility of use, since functions change with the occasion.

Photos: Dewey G. Mears

college group living are

data

cabinetwork

Trophy Case: designed by architect/ birchwood frame/ ¼" plate-glass sliding doors/ **Hardware:** #992 ball-bearing track assembly/ Knape & Vogt Mfg. Co., 658 Richmond St. N.W., Grand Rapids 4, Mich.

doors and windows

Entrance Doors: 1¾" solid-core walnut-veneer/ "Roddiscraft"/ Roddis Plywood Corporation, Marshfield, Wis.

Accordion Door: "Modernfold"/ #4808, oyster white vinyl covering/ NewCastle Products, P.O. Box 988, New Castle, Ind.

Glass Sliding Doors: metal-framed/ #1/ Steelbilt, Inc., 18001 South Figueroa, Gardenia, Calif.

furnishings and fabrics

Square Table: #NK-8/ European elm top, birch legs/ 30" x 30" x 19¾" h./ Knoll Associates, Inc., 575 Madison Ave., New York, N. Y.

Chairs: #25 with arms, #21 armless/ birch legs/ Knoll Associates.

Sofas: #26/ birch legs/ Knoll Associates.

Coffee Tables: #115-R/ birch Realwood top/ white enamel T-iron base/ Knoll Associates.

Dining Chairs: #666U/ red Naugahyde upholstery/ Knoll Associates.

Curtains: #K290/14 "Mosaic"/ yellow on white/ #K170/7 "Buster"/ cocoa, black, and white/ #K11/44 "Sequence"/ black on yellow cotton/ Fabric Division, Knoll Associates.

Hardware: curtain tracks/ #9070/ Kirsch Company, 309 Prospect, Sturgis, Mich.

lighting

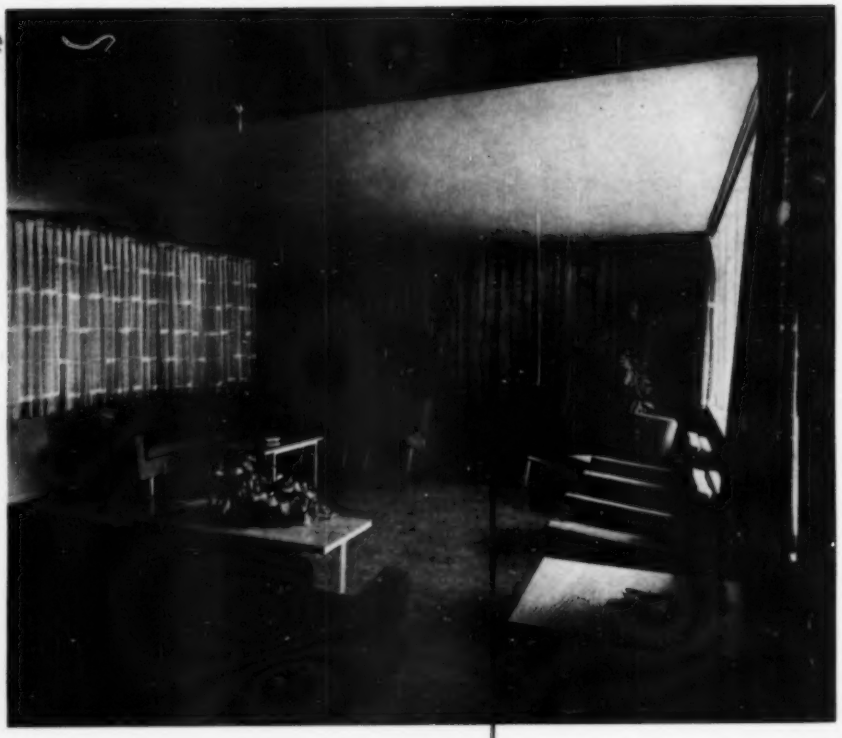
Opal Glass Units: #1015-6615/ Prescolite Mfg. Corp., 229 Fourth St., Berkeley, Calif.

walls, ceiling, flooring

Sand-blasted Wood: #1 Amerwood/ Southwood Corporation, P.O. Box 391, Fort Worth, Tex.

Sheetrock Walls: finished with three coats rubber-base paint.

Asphalt Tile: #C-346, pearl grey marble/ Armstrong Cork Co., Lancaster, Pa.



sand-blasted panding

location	Pi Kappa Alpha Fraternity, Austin Texas
architects	Landgren & Maurer

Interior design is chiefly an expression of architectural forms—all walls and surfaces have a functional purpose. For example, the ledgestone wall panel in the recreation room serves as a horizontal stiffening element to support two load-bearing pipe columns. A low budget figure of $8.70 per square foot, including air conditioning, necessarily required austere simplicity. A very close co-ordination between interior design and the architecture has been the result.

Photos: Dewey G. Mears

asphalt tile

college group living areas

The designers treated this house as a large residence—a home away from home—with the consideration that rooms also will be used for large social groups. To avoid the atmosphere of a hotel lobby, small conversational and social areas were created to accommodate smaller groups; and native stone and redwood were used to create a feeling of informality.

Photos: Dewey G. Mears

location | Alpha Gamma Delta Sorority, Austin, Texas

architects | Fehr & Granger

data

cabinetwork

Birch Shelves: designed by architect/ K & V brackets.

doors and windows

Doors: flush-panel hollow-core/ Roddis Plywood Corp., Marshfield, Wis.

Architectural Projected Windows: R. H. Folmar Company, Austin, Tex.

furnishings

Wooden Armchairs: #61U/ designed by Eero Saarinen/ Knoll Associates, Inc., 575 Madison Ave., New York 22, N. Y.

Armless Chairs: #92/ designed by Pierre Jeanneret/ Knoll Associates.

Coffee Table: #110/ designed by Florence Knoll/ Knoll Associates.

Settee: #22/ Knoll Associates.

Armless Settee: #23/ Knoll Associates.

Wooden Slat Bench: Herman Miller Furniture Company, Zeeland, Mich.

lighting

Ceiling Lights: Gotham Lighting Corp., 37-01 31 St., Long Island City, N. Y.

Wall Lights: General Lighting Co., Inc., 1527 Charlotte St., New York, N. Y.

walls, ceiling, flooring

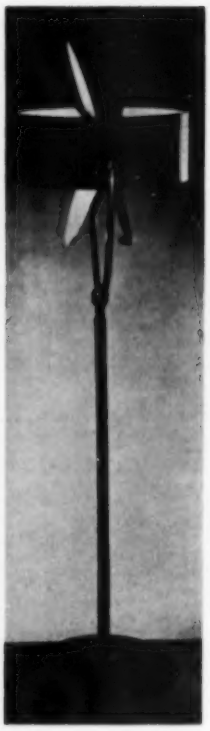
Walls: stone and wood studs/ "Sheetrock" and "Textone"/ U. S. Gypsum, 300 W. Adams St., Chicago, Ill.

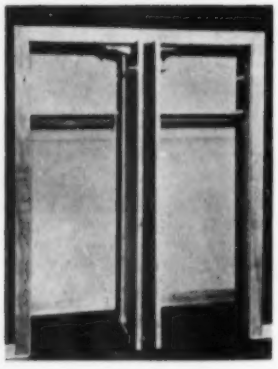
Ceiling: Fiberboard/ Celotex Corp., 120 S. LaSalle St., Chicago 3, Ill.

Flooring: asphalt tile.

display shelves

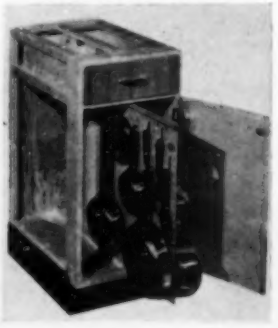
Lighting Fixture: "Newman-Lite"/ drum-shaped metal shade with 16" diameter, 6" depth, contains two light bulbs/ half-circles on both top and bottom of shade form "light wings"/ permits direct, indirect, and accent light/ **Newman-Lite, 147 W. 55 St., New York, N. Y.**





Hospital Wardrobe Closet: #402, "Emco Spacemaster Twin"/ for double rooms and wards/ doors recede to center to serve as divider for closets/ any width door possible/ equipped with chrome hanger rod and fir or yellow-pine storage shelf/ **Equipment Manufacturing Co., Inc., 1210 E. Ninth St., Kansas City 6, Mo.**

Kitchen Cabinet Fittings: peg-board construction/ may be fitted with any combination of drawers, trays, wire baskets, or sealed bread trays/ pan rack slides out for convenient selection; food cart may be wheeled to other areas as needed/ **Brammer Mfg. Co., Davenport, Iowa.**



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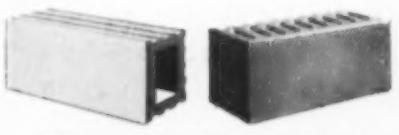

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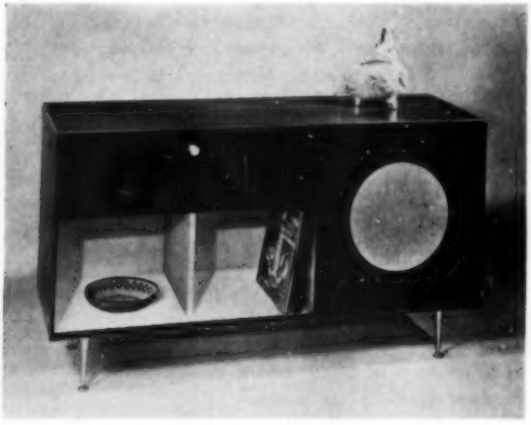
Chair: #650/ ash or walnut frame/ leather upholstery/ 23½" wide, 30" high, 27" deep/ **retail:** $100/ **Allan Gould Design Inc., 166 Lexington Ave., New York, N. Y.**



Radio-Phonograph Record Cabinet: #5432/ accommodates popular types of receiver sets/ rosewood cabinet with black or white porcelain pulls/ available with cast-aluminum legs/ full-backed speaker section for high-fidelity components/ mechanism reminds listener to close the changer drawer before turning on set/ 55½" long, 23¾" high, 19½" deep; legs 7" high/ designed by George Nelson/ **retail:** $242/ **Herman Miller Furniture Company, Zeeland, Mich.**

Chairs: #422 lounge chair, #421 small [illegible]mond chair/ steel-wire and rod frame/ [illegible]signed by Harry Bertoia/ **retail:** $96, [illegible]. **Radio-Phonograph Unit Cabinet:** #[illegible]24/ houses Hi-Fi AM-FM radio, three-speed re[illegible] player/ birch case. Pandanus cloth-co[illegible] speaker/ designed by Florence Knoll/ se[illegible] by Custom Television, Inc./ **Knoll Associates, Inc., 575 Madison Ave., New York 22, N. Y.**

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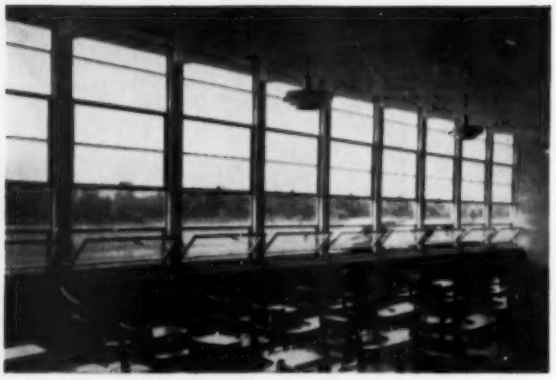

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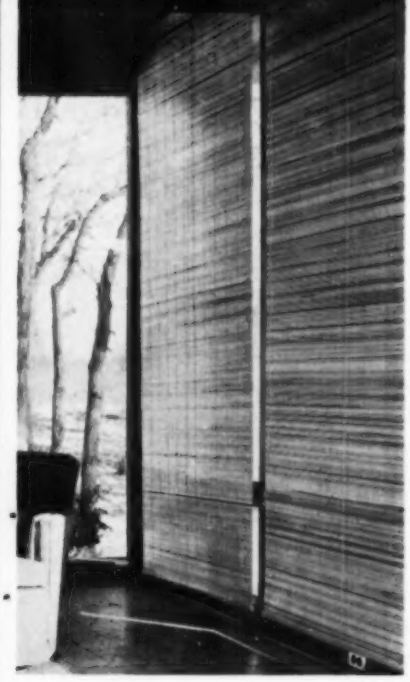
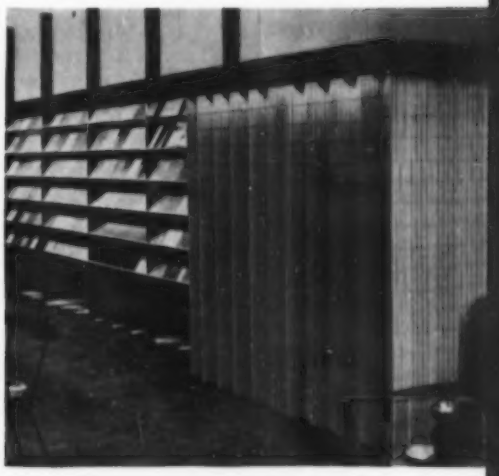
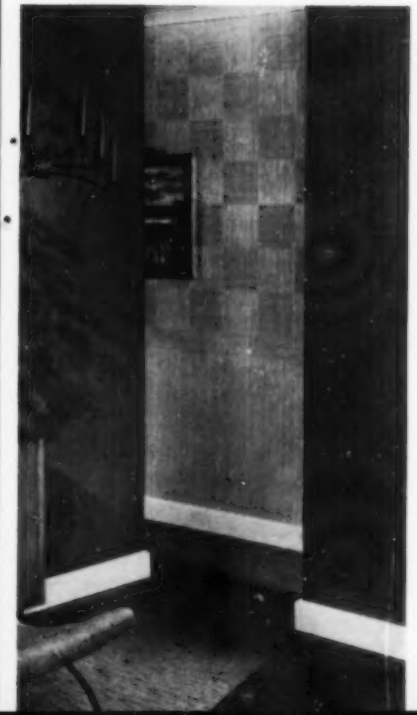
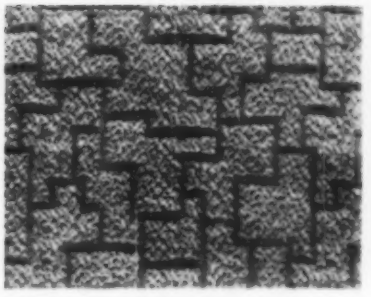


Window Shades: "Belmar"/ narrow strips of basswood with edges beveled to overlap/ available in complete range of sizes and ten colored-lacquer finishes plus clear lacquer/ **The Hough Shade Corporation, 1023-1059 S. Jackson, Janesville, Wis.**

Folding Doors: "Ra-Tox"/ for wardrobe closets or room dividers/ installation in ceiling track permits wall-to-wall carpet installation for unification of space/ **The Hough Shade Corporation, 1023-1059 S. Jackson, Janesville, Wis.**







Upholstery: "Contour," "Parkay"/ spun Saran/ combines durability of Saran and appearance and texture of wool/ **Bolta Products Sales, Inc., 151 Canal St., Lawrence, Mass.**

Vinyl Wall Covering: "Bolta-Wall Woodgrain Series"/ textured effect of wood grain/ face sheet laminated to rubber-saturated backing permits use on curved surfaces/ available by yard or 8" square tiles/ **Bolta Products Sales, Inc., 151 Canal St., Lawrence, Mass.**

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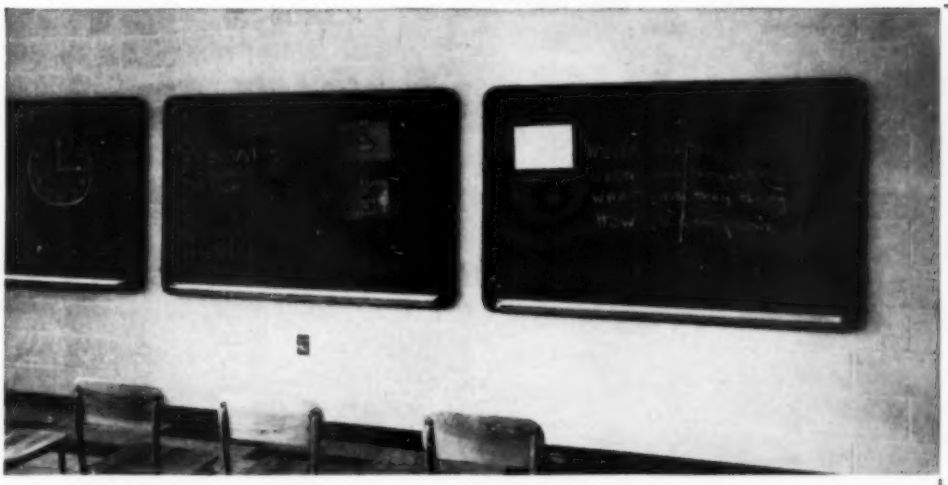
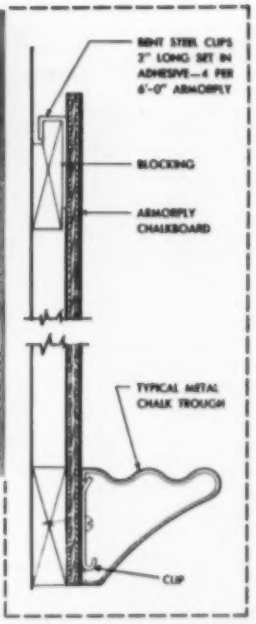
as well as the pupil





ARMORPLY* CHALKBOARD SAVES 30% on installation costs. No frame is needed. Cool green surface is easier on young eyes. Takes chalk beautifully. Porcelain-surfaced steel† face attracts small magnets, makes visual aids and physical demonstrations possible. Won't scratch, chip or crack. Armorply Chalkboard is guaranteed for the life of the building. It will never need to be replaced and requires no maintenance beyond normal cleaning. Sketch shows how easily it attaches to wall. Above is typical Armorply Chalkboard installation at Fairlawn Junior High School, Fairlawn, N. J.

INEXPENSIVE NOVOPLY* WALL PANELING is being widely used for corridors and classrooms. Hard, crack-free surface keeps down maintenance costs. Easily installed, speeds building time. Novoply's warp-resistant nature makes it perfect for partitions, built-ins and sliding cloakroom doors. Available in pine or California redwood finish. Installation shown, Unqua School, Massapequa, L. I., N. Y.

WELDWOOD HARDWOOD PANELING has a permanent beauty unmatched by any other type of wall covering. Its first cost is its last because it is guaranteed for the life of the building. Available in almost any wood face desired—in a wide range of sizes. New prefinished panels eliminate costly on-the-job finishing. Illustration shows Weldwood oak paneling in Transfiguration School, Tarrytown, N. Y.

*Trademark

†Porcelain enamel surface by the Bettinger Corporation

Weldwood®

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Manchester, Missouri

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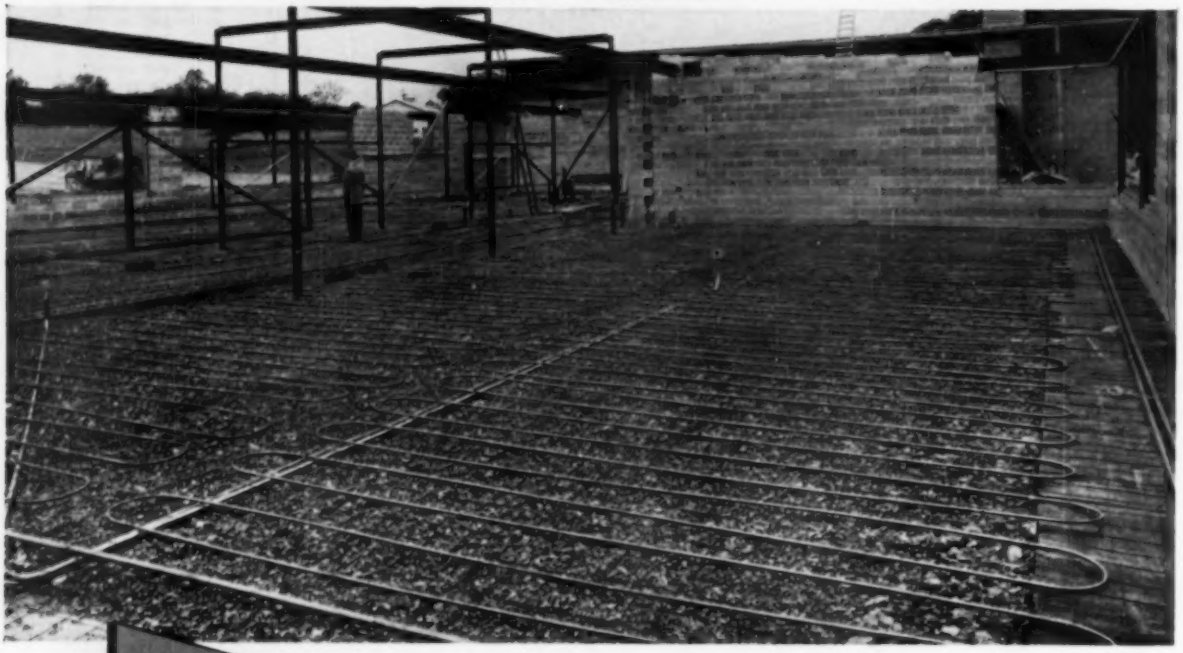
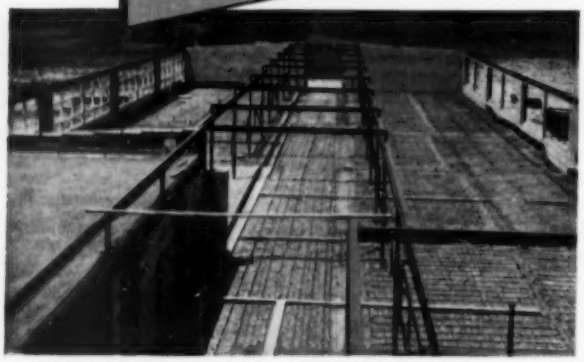
Contractor: JUENGEL CONST. CO., St. Louis, Mo.
Radiant Heating: BAGLEY & COMPANY, Inc., Robertson, Mo.
Revere Distributor: GRINNELL COMPANY, Inc., St. Louis, Mo.



Another case of COPPER where it counts!



TWO VIEWS of the radiant Panel heating layout before concrete slab was poured. Floor area over 17,000 sq. ft. System was imbedded in slab 4". Gravel fill is 6" deep. Coils are 12" OC. System is divided into 4 zones, with all supply and return lines also of copper. Note edge insulation at right in large photo.

Radiant Panel Heating fits perfectly into the growing trend to 1-story school construction. It means warm floors, no drafts, and a healthier atmosphere for scholars. To the architect radiant panel heating means greater latitude in design, more usable space for the money. And for the user it means greater heating efficiency, lower redecorating costs and less cleaning and maintenance than when old-fashioned heating methods are used. The ideal material for panel heating is copper. For no other metal or alloy has all the desirable construction characteristics of this "ageless" metal.

Revere Copper Water Tube is easy to bend and handle . . . its long 60′ lengths require fewer fittings, the solder fittings used eliminate the need for welding, wrench work and thread cutting, while its lasting, non-rusting qualities have been proven through the centuries. Even being buried in a concrete slab doesn't bother enduring copper. Copper is the metal you can trust. That's why, in structures built to last, copper invariably gets the call.

Next time be sure to specify Revere Copper Water Tube for radiant panel heating, hot and cold water lines, underground service lines, air conditioning and processing lines, waste stack and vent lines. There is a Revere Distributor near you who carries a full supply of Revere Copper Water Tube in various sizes and tempers. And if you have technical problems, he will put you in touch with Revere's Technical Advisory Service.

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★ *Editors' Note: Items starred are particularly noteworthy, due to immediate and widespread interest in their contents, to the conciseness and clarity with which information is presented, to announcement of a new, important product, or to some other factor which makes them especially valuable.*

air and temperature control

1-77. Product News from American Standard (SAC-225, 232, 237, 238), four 1-p. data sheets announcing new line of heating equipment — automatic gas- and oil-fired utility units, approved for installation on combustible flooring with zero clearance, and automatic oil- and gas-fired counterflow units. Ratings, dimensions, number and sizes of filters, detail drawings and photos of units. American Radiator & Standard Sanitary Corp., Sunbeam Air Conditioner Div., Bessemer Bldg., Pittsburgh 22, Pa.

1-78. A Complete Line of Top-Quality Heating Equipment, AIA 30-C (1101C), 8-p. booklet describing two-pipe differential heating system, convector cabinets, baseboard and fin-type units, heating-cooling cabinets, unit heaters for steam and hot water, gas-fired unit heaters, duct furnaces, vacuum and condensation pumps. Explanation of heating system with cutaway drawing and photos of elements, capacity tables for unit heaters, other data. C. A. Dunham Co., 400 W. Madison St., Chicago 6, Ill.

1-79. Selectemp, AIA 30-C (2769), 8-p. brochure describing self-modulating heating system with individual thermostatic control of room temperature. Information on operation of system's units, list of advantages, photos of installations, ratings and sizes of units, detailed data on gas- or oil-fired steam boilers. Iron Fireman Mfg. Co., 3170 W. 106th St., Cleveland 11, Ohio.

1-80. Remington's New "Third-Way" System of Residential Air Conditioning, AIA 30-F-1 (H54), 8-p. booklet giving information on new year-round air-conditioning system employing self-contained units which, depending on room sizes, house construction, and exposure, will cool from one to six rooms each. Examples of installation possibilities, specifications, performance data, photos of models. Remington Corp., Remington Air Conditioning, Auburn, N. Y.

1-81. Facts to Consider When Selecting the Boiler for Modern School Heating, 8-p. brochure with data on cast-iron boilers for school buildings which are installed with automatic firing devices. Description of design features, sectional view, photos of boiler units, illustrated example of various schools' experience as typical small-town systems and also those allowing for future expansion. The H. B. Smith Co., Inc., Westfield, Mass.

1-82. Webster Moderator System of Steam Heating (B-900-4B), 16-p. brochure describing low-pressure two-pipe systems of steam circulation in which steam is delivered to radiators and other heating surfaces through supply piping. Also, data on electrically-operated central control with outdoor thermostat providing automatically graduated steam flow to all radiators. Typical arrangement of system, design requirements, specifications, photos. Warren Webster & Co., Camden 5, N. J.

construction

2-88. How to Take 15 Years Off School Building Costs (SX254), 4-p. folder illustrating one-story school buildings constructed entirely of steel. Discussion of economic advantages gained by the use of steel panels for both structural support and finished exterior. Interior and exterior photos, drawings showing three arrangements determined by number of rooms needed. Armco Drainage & Metal Products, Inc., Middletown, Ohio.

2-89. Horn Folding Partitions (852-14-8), 8-p. catalog covering line of folding partitions for gymnasiums, classrooms, and commercial buildings which are available with electrical, mechanical, or manual operation. Gymnasium floor plans, photos, specifications, types of doors; details of electric folding partition showing automatic post and bumper jambs, door construction, and vertical section through door and hanger assembly. Also data on folding stages. The Brunswick-Balke-Collender Co., Horn Div., 623 S. Wabash Ave., Chicago 5, Ill.

2-90. Granite in Architecture, AIA 8-B-3, 8-p. brochure giving information on architectural granite, including standard building granite, granite veneer, and masonry granite. Detailed specifications for standard-grade granite, classification chart listing colors, grains, trade names of all granites quarried by association members. National Building Granite Quarries Assn., Inc., 114 E. 40th St., New York 16, N. Y.

★ **2-91. Burgess-Manning Three-Way Functional Ceiling,** AIA 17-A (A-129), 12-p. brochure explaining self-contained, suspended ceiling which offers radiant-panel heating and cooling (using same coils) and acoustical control. Illustrated description of system and its components, typical specification, performance characteristics, design procedure based on performance curves, suggested procedure for layout of ceiling, how to estimate cost. Burgess-Manning Co., Architectural Products Div., 5970 Northwest Highway, Chicago 31, Ill.

2-92. Insulux Glass Block: Catalog for 1954, AIA 10-F (IB-2), 24-p. catalog emphasizing advantages of light qualities, insulation, and permanence of hollow clear-glass blocks, formed in two sections and sealed together at high temperatures. Sizes and face designs, photos of installations, ventilation and light-control data, curved panel laying radii, panel and other details, specifications, performance data. Kimble Glass Co., Toledo 1, Ohio.

2-93. Masonite Presdwood in Architectural Design and Construction (5209 IEB-AEC), 32-p. guide for selection, application, and finishing of line of plywood products for such uses as interior and exterior paneling, underlayment, concrete forms, and siding. Illustrated data on interior and exterior applications, working methods, application of wainscot to solid backing, application of underlayment, detailed specifications. Masonite Corp., Dept. PAED-54, Box 777, Chicago 90, Ill.

Sixteen-p. brochure and 4-p. supplement illustrating wall pattern effects obtainable with concrete masonry units of various sizes, styles, and textures. Exterior and interior examples of wall patterns (commercial buildings, theaters, schools, churches, and homes) are accompanied with photos and data on concrete masonry units used

(Continued on page 157)

PROGRESSIVE ARCHITECTURE, 330 W. 42nd Street, New York 36, N. Y. I should like a copy of each piece of Manufacturers' Literature circled.

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1-81	2-94	4-55	8-43
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2-89	3-70	4-58	

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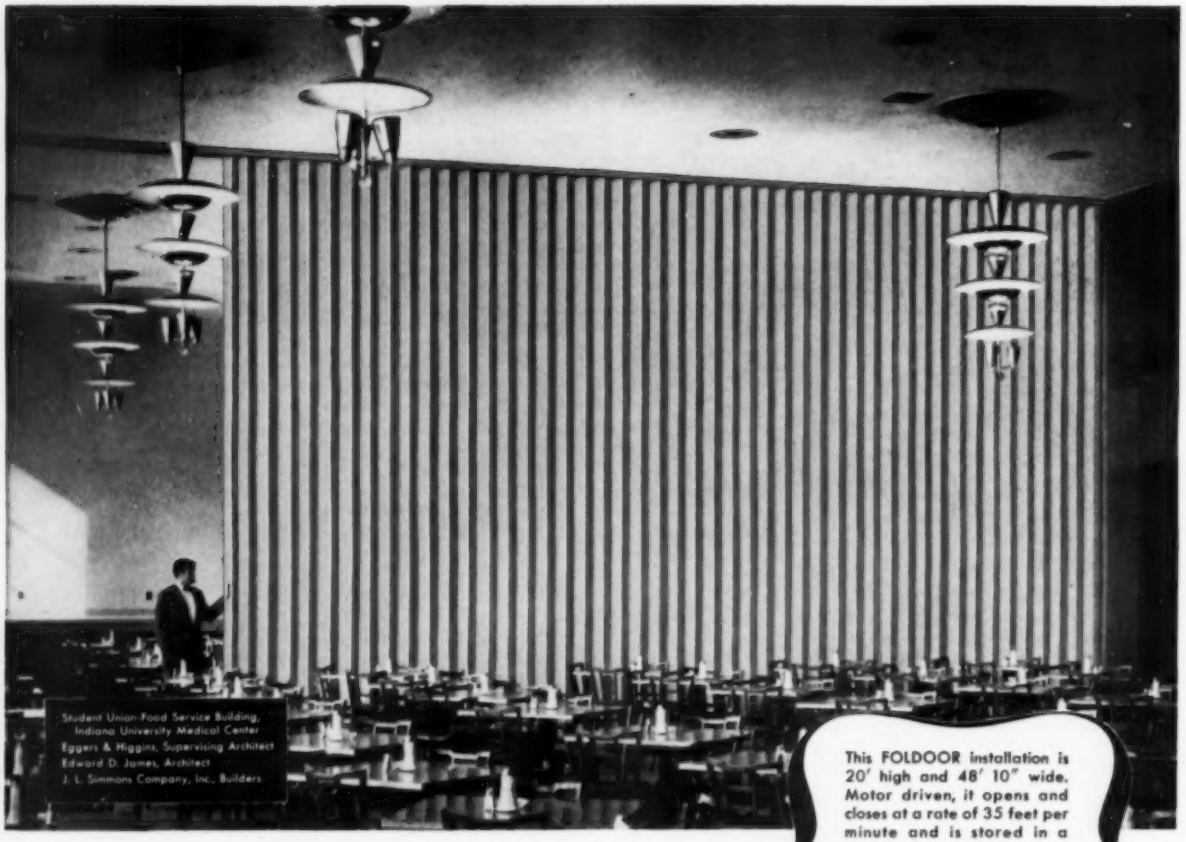
Student Union-Food Service Building,
Indiana University Medical Center
Eggers & Higgins, Supervising Architect
Edward D. James, Architect
J. L. Simmons Company, Inc., Builders

This FOLDOOR installation is 20′ high and 48′ 10″ wide. Motor driven, it opens and closes at a rate of 35 feet per minute and is stored in a pocket. Motor panel is easily available for repair.

Fifteen other FOLDOOR installations of all sizes were used in this new building to obtain unusual flexibility, utility and beauty.

High...wide and handsome!

Here again FOLDOOR has played an important part in the plans of a major building project, giving the best fabric-covered folding door appearance and performance possible to obtain.

From small residential closures and partitions to this magnificent Indiana University installation, FOLDOOR is solving the space problems of architects everywhere.

FOLDOOR is the folding door immediately distinguished by its attractive cornice . . . by its new line of fabrics (from DuPont and other quality makers) that take the folding door out of the "oilcloth" appearance class . . . by its ability to stack into a minimum of 1 5/8″ per foot of opening. Construction strength and quality are uniform in *all* models—you never have to guess when you specify FOLDOOR for any size installation.

Include FOLDOOR in *your* plans. There's a size for every opening . . . there are handsome fabrics and colors to match any interior . . . there are curved, soundproof, switch-type and mechanically operated models available. For additional information see Sweet's Catalog or consult your nearby FOLDOOR distributor—there's one in every principal city.

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1545 VAN BUREN STREET, INDIANAPOLIS, INDIANA

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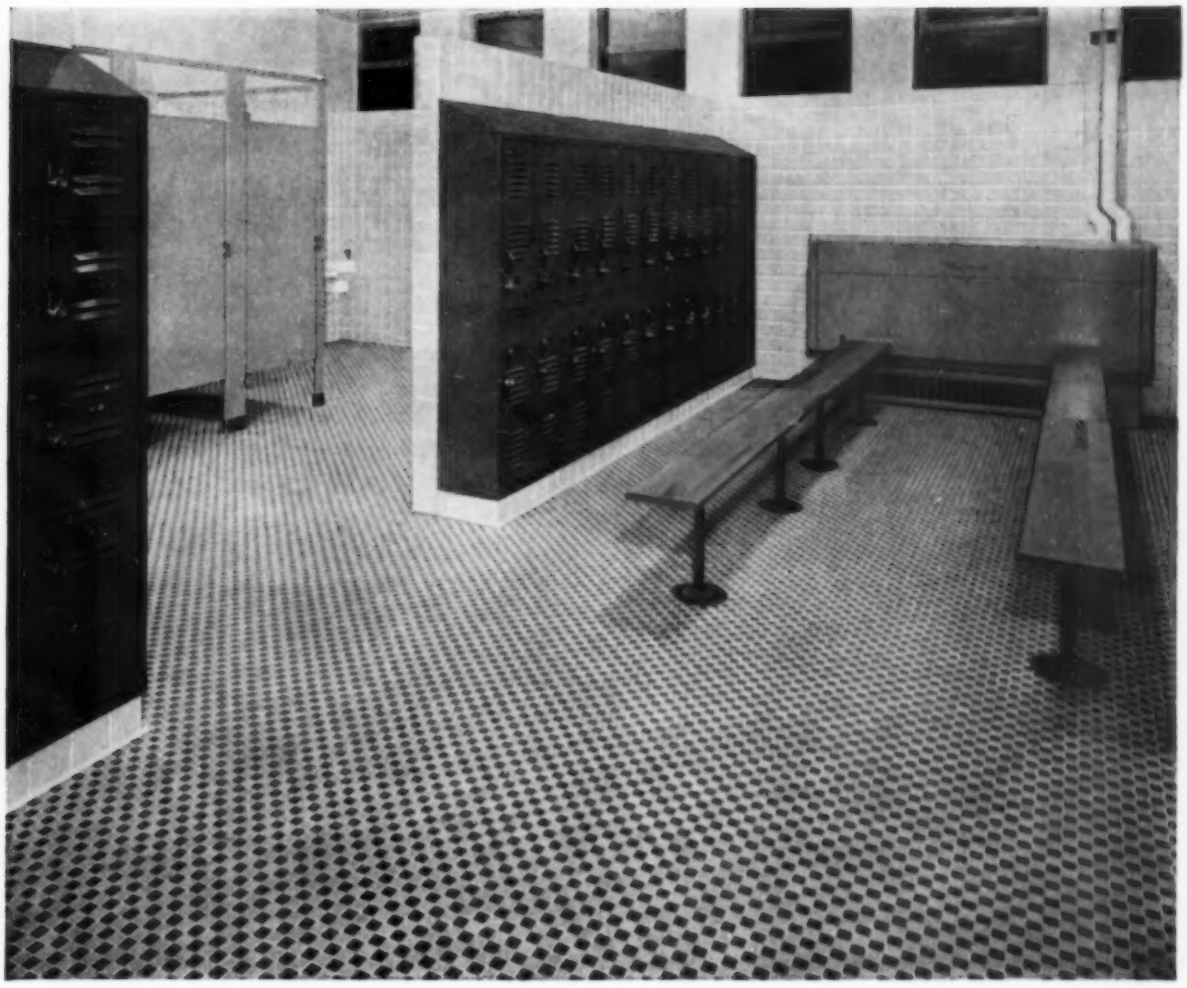

Locker and shower room, Frederick Douglass Stubbs School, Wilmington, Del.

When the kids come in from play . . .

School kids aren't the neatest people in the world, especially when they get near a shower. That's why American-Olean Tile was a natural choice for this locker-shower room. Tile is splatter-proof, puddle-proof, child-proof, and easy to clean with a fast-moving mop.

Wherever it is used, real clay tile offers other important advantages, such as long wear, easy sanitation, and minimum upkeep costs—and its beauty is permanent.

American-Olean Tile Co.

Executive Offices: 1024 Kenilworth Avenue, Landsdale, Penna.
Factories: Lansdale, Pennsylvania • Olean, New York
Member, Tile Council of America

A-O TILE—IN ROOMS BUILT FOR PUNISHMENT

1. Tiled floor cannot warp or stain, is proof against cleats and spikes, won't harbor foot-infecting germs.

2. Tiled walls shed water and steam, never need repainting, laugh at mischief marks and accidents.

3. Tile will not fade or discolor, even after frequent scouring with harsh soaps and disinfectants.

TILE SPECIFICATIONS: Color Plate 334. Walls: 12 Buttercup. Floor: Single Tile Check, Blue Granite, Gray Granite.

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☐ Please send me Booklet 600, showing color photographs of actual tile installations in schools, hospitals, etc.

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FOR THAT *Extra* BATHROOM CONSIDER THIS AllianceWare

"JUNIOR" SIZE BATHTUB

Quite frequently in new construction and especially on remodeling jobs, you find a demand for a second bathroom but space is at a premium. Here's where the AllianceWare "Junior Size" tub—Model B-42-S—gives you all the advantages of space-saving.

From front to back—this tub is the same as standard AllianceWare tubs—30⅝". The length, however, is only 42"—the height is 12"—an especially convenient height for bathing small children—an easy tub for the elderly person to step into—and an excellent idea for a shower receptor.

Made from 14-gauge enameling steel, this model has every other quality feature of AllianceWare tubs. A wide seat forms the outer rim; an integral wall guard extends a full inch on three sides where the tub joins the wall; the finish is AllianceWare quality, stainproof porcelain enamel in white, pink, green, blue, tan, or grey. Write for complete information and installation diagram.

AllianceWare
PORCELAIN ON STEEL

FOR MODERNIZATION...FOR A SHOWER RECEPTOR

You'll go a long way to find a more suitable tub for modernizing jobs where space is limited. And as a shower receptor this tub far exceeds in convenience and roominess the ordinary shower stall.

ALLIANCEWARE, INC. • Alliance, Ohio

Bathtubs • Lavatories • Closets • Sinks

Plants in Alliance, Ohio, and Colton, California

(Continued from page 153)

in each case. Close-ups showing typical wall pattern variations; sound absorption values, suggested wall finishes, and suggested specifications. National Concrete Masonry Assn., 38 S. Dearborn St., Chicago 3, Ill.:

2-94. Ideas for Wall Patterns with Concrete Masonry, AIA 10-C (CM-116)

2-95. New Ideas for Concrete Masonry Construction, AIA 10-C (65)

2-96. Rapidex for Roofs and Floors, AIA 4-K, 8-p. booklet on concrete sectional slabs for roofs and floors. Description of fabrication process, function, utility, erection, and design flexibility of slabs. Acoustical properties including coefficients of general building materials, load design tables, heat transmission coefficients, and other data. Photos showing fabrication, erection, finished ceiling, and close-up of texture. Rapidex Co. of Indiana, 1100 E. 52nd St., Indianapolis 5, Ind.

doors and windows

3-70. Barcol Wardrobe Door (F-5889), folder containing brochure, drawings, and other material on solid-core doors for school use which provide wardrobe sections (when open) and chalkboards (closed). Advantages, vertical section, plan showing pupil accommodations for various door widths, elevations, and other detail drawings; specifications. Barber-Colman Co., Rockford, Ill.

3-71. Pella Wood Folding Doors (D-54), 8-p. booklet on folding doors made up of individual laminated wood panels joined by continuous spring hinging, stack to 6" for average interior door opening. Suggested uses in homes, offices, schools, and churches; stock and custom sizes; available veneers; test results on sound-retardant properties; detail drawings and illustrations of recessed pocket installations; description of components; specifications. Rolscreen Co., Pella, Iowa.

3-72. Ware Aluminum Windows, AIA 16-E, 20-p. 1954 catalog giving information on line of aluminum windows, including casement, awning, intermediate awning, and projected models. Dimensions, specifications, features, sectional and installation details for each type. Photos of units. Ware Laboratories, Inc., 3700 Northwest 25th St., Miami, Fla.

3-73. Yale Aluminum School Hardware (A-7), 6-p. folder showing models in line of aluminum hardware for school buildings. Types of hardware include locksets, door stops, sash fasteners, push plates, door closers, letter hole trims, flushbolts, and door pulls (latches and locks for all types of doors). Features of line, sketches and photos of models. Yale & Towne Mfg. Co., Yale Lock and Hardware Div., Stamford, Conn.

electrical equipment, lighting

4-54. The Versatile Day-Brite Luvex, AIA 31-F-2 (OD-572), 4-p. leaflet outlining the advantages of commercial lighting fixtures with 35°-25° or 35°-45° shielding, slimline or fluorescent lamps. Description of components, over-all efficiency charts, list of catalog numbers with length, hanger, and lamp data. Day-Brite Lighting, Inc., 5411 Bulwer Ave., St. Louis 7, Mo.

4-55. Edwards Centrally Controlled Clock and Program Systems, 12-p. catalog with data on synchromatic clock systems with either manual or automatic switches, using flush or surface indoor, double-face suspended, or skeleton-dial clocks; also audible signals. Clock systems either single or multiple circuit types. Audible signals include bells, horns, chimes, and buzzers. Models, dimensions, operations, applications, clock and program specifications, and photos of equipment. Edwards Co., Inc., Norwalk, Conn.

4-56. Executone School Communication System (358A), 4-p. folder describing operation of school intercommunication system. Provisions for radio program-

(Continued on page 158)

COMBUSTIONEER

Modulating Controlled Stokers

Stop Over-Firing and Waste of Coal!

• Combustioneer's Modulating Controls automatically feed coal and air to the fire at *variable* rates, to meet load requirements, starting slowly, accelerating, tapering off, or stopping. This levels off peaks and valleys in feeding, prevents over-firing and waste of coal! Furthermore, Combustioneer's agitating transmission keeps the fire-bed always open, free burning . . . the automatic respirator controls air delivery for maximum combustion efficiency, and smoke-free stacks. The result . . . heat output is always balanced with the load demand.

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Gas Burners • High and Low Pressure Oil Burners
Oil Furnaces • Stokers • Humidifiers

p/a manufacturers' literature

(Continued from page 157)

ming, recorded music, public address, paging, program and clock signals, synchronizing signals, emergency alarms, and priority control. Construction and dimensional information, photos of equipment. Executone Inc., 415 Lexington Ave., New York, N. Y.

4-57. Plexlite: The Modern Approach to Highest Lighting Efficiency, AIA 31-F-2 (P-54), 16-p. booklet on line of fluorescent lighting fixtures. Units have molded acrylic plastic diffusers, steel chasses finished in baked white enamel. Specifications for square, rectangular, and round units, depths of diffusers, sizes; photos, charts, drawings. Gruber Lighting, 125 S. First St., Brooklyn 11, N. Y.

4-58. Director: Today's Finest Fluorescent Luminaire (500-D-11), 8-p. brochure giving features of fluorescent lighting fixtures for slimline and bi-pin lamps which may be surface or pendant mounted, individually or in continuous rows. Suggested mounting arrangements, lighting characteristics, number and types of lamps, data on brightness tests, photos of installations. Smithcraft Lighting Div., Chelsea 50, Mass.

finishers and protectors

5-15. Novaproofing, AIA 7-A-2, 4-p. booklet enclosing specification sheets for integral waterproofing of walls and floors below grade, industrial concrete floors, brick and stone mortar, exterior stucco finishes, block walls and concrete floors below grade on exterior surfaces, and instructions for application of waterproof masonry paint. Nova Sales Co., Trenton 3, N. J.

sanitation, plumbing, water supply

7-22. Soap and Soap Equipment (25-AA), 14-p. brochure on line of soap and equipment for applications ranging from general public washroom use to specialized hospital surgical applications. Information on ten types of soap, multiple washroom system, horizontal and vertical valves, tanks and fittings, dispensers, towels and towel cabinets. Drawings, photos, and dimensions of individual units. West Disinfecting Co., 42-16 West St., Long Island City 1, N. Y.

specialized equipment

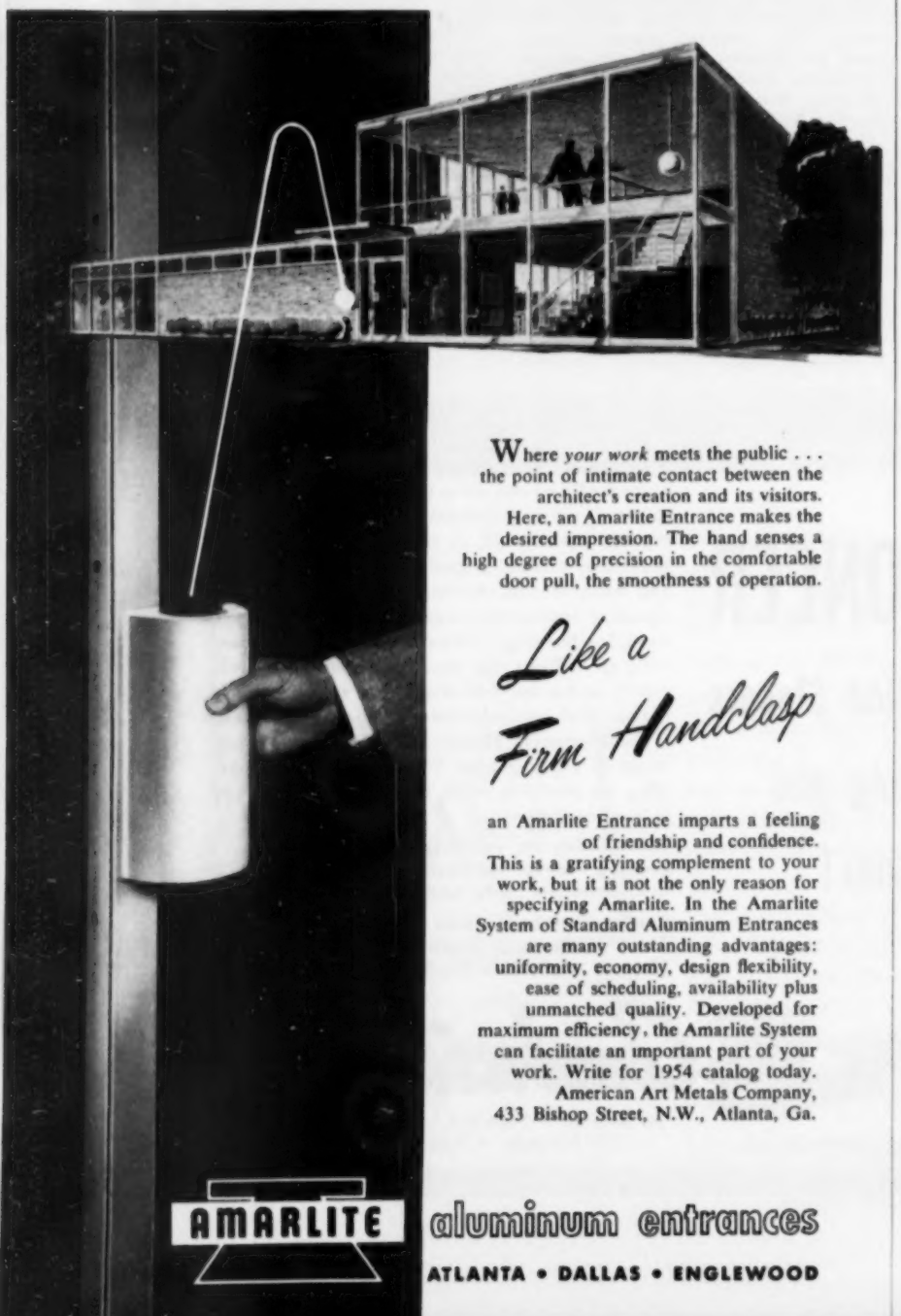
8-41. The Austral Reverse-All Unit, 4-p. folder describing features of reversible panels with chalkboard and corkboard facings. Available colors, auxiliary units, detailed sections, and specifications. Austral Products Corp., 225 Broadway, New York 7, N. Y.

8-42. All-Steel Combination Sink and Counters, 4-p. folder giving data on steel storage and work counter cabinets for primary and grammar schools. Photos of typical combinations, itemized features, details of components, complete assembled detail, and specifications. Colonial Engineering Co., Inc., 48 Grove St., Somerville 44, Mass.

8-43. Horn Folding-Type Classroom Wardrobes, AIA 35-B-4 (1253), 22-p. catalog with specifications and features of folding classroom wardrobes (various types), closets and closet accessories, wardrobe hardware, and hollow- and solid-core doors. Details of all units in available types and sizes. The Brunswick-Balke-Collender Co., Horn Div., 623 S. Wabash Ave., Chicago, Ill.

surfacing materials

★ **9-32. Portfolio of Interiors,** AIA 23-G (F-589-1053), portfolio prepared with AIA assistance, containing 22 1-p. sheets illustrating line of resilient flooring. Photos of contemporary interiors using linoleum or asphalt, rubber, cork, vinyl plastic, or other tiles. Features of each type of flooring, list of company's services. Armstrong Cork Co., Lancaster, Pa.



Where *your work* meets the public . . . the point of intimate contact between the architect's creation and its visitors. Here, an Amarlite Entrance makes the desired impression. The hand senses a high degree of precision in the comfortable door pull, the smoothness of operation.

Like a Firm Handclasp

an Amarlite Entrance imparts a feeling of friendship and confidence. This is a gratifying complement to your work, but it is not the only reason for specifying Amarlite. In the Amarlite System of Standard Aluminum Entrances are many outstanding advantages: uniformity, economy, design flexibility, ease of scheduling, availability plus unmatched quality. Developed for maximum efficiency, the Amarlite System can facilitate an important part of your work. Write for 1954 catalog today.
American Art Metals Company,
433 Bishop Street, N.W., Atlanta, Ga.

AMARLITE aluminum entrances

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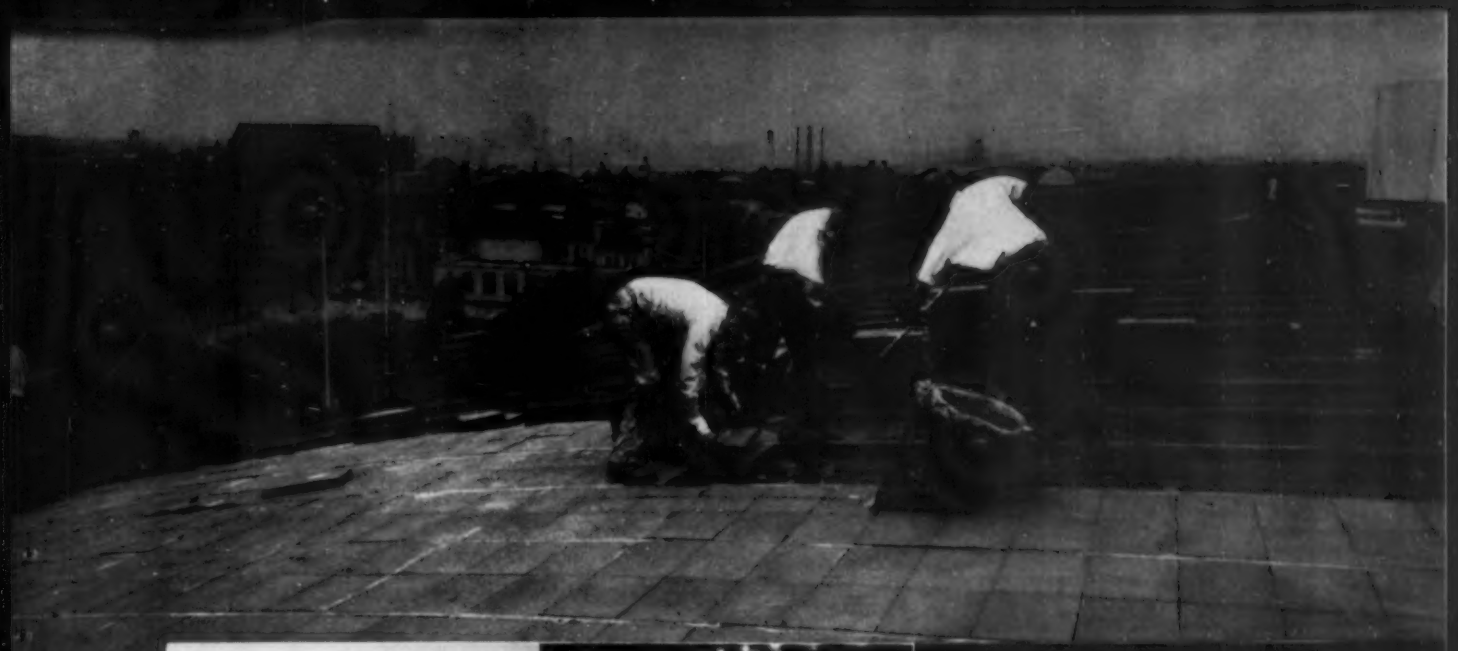
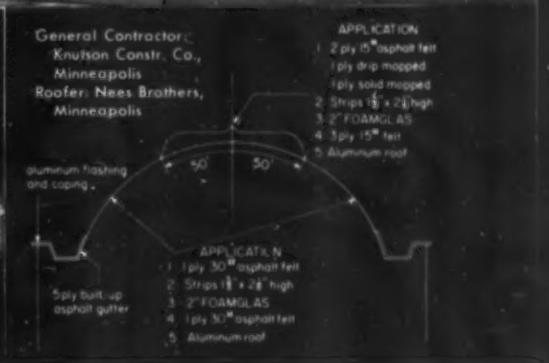


General Contractor:
Knutson Constr. Co.,
Minneapolis
Roofer: Nees Brothers,
Minneapolis



18,000 Gopher fans made "rain" until field house roof was insulated with FOAMGLAS

Large crowds in the University of Minnesota Field House used to be crackerjack "rainmakers." How?... They generated so much humidity that the original insulation on the roof became water-soaked. Then there was nothing to prevent condensation from forming on a cold underside of the roof deck. "Rain" literally fell in the field house. During a basketball game, for example, play had to be stopped frequently to mop up the floor.

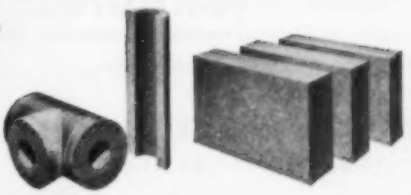
FOAMGLAS, the cellular glass insulation was picked to solve this problem in 1948. It hasn't rained since. The sealed glass cells of FOAMGLAS *can not* absorb moisture, assuring constantly high insulating performance despite the high humidity inside and the frequently extreme outside temperatures in the Minneapolis area. The roof curvature was no problem with easily handled blocks of FOAMGLAS, readily shaped and fitted where necessary and with sufficient strength and rigidity to permit easy, efficient application to the roof.

Whatever *your* insulating problems may be, FOAMGLAS is the ideal answer. This strong, stay-dry insulation guarantees efficient insulating service plus unique design advantages. Let us send you our new booklets describing the use of FOAMGLAS to insulate roofs, walls, floors, ceilings, piping or equipment in normal or low temperature buildings. Write to Dept. AB-44.

PITTSBURGH CORNING CORPORATION • One Gateway Center • Pittsburgh 22, Pa.

FOAMGLAS®

the cellular, stay-dry insulation



PITTSBURGH PC CORNING

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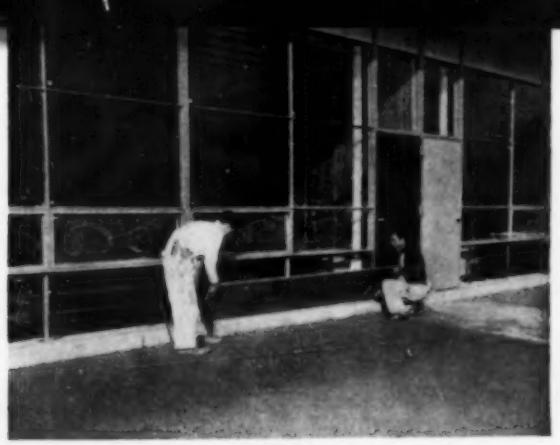
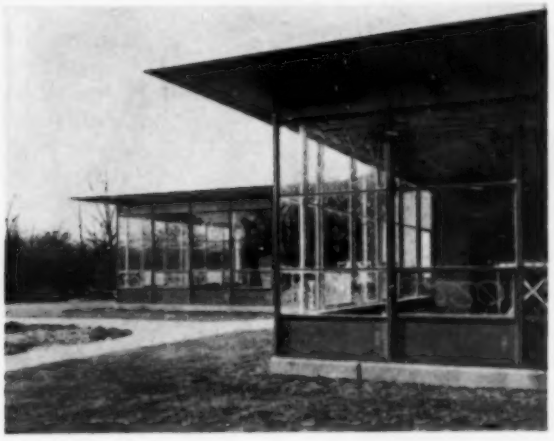
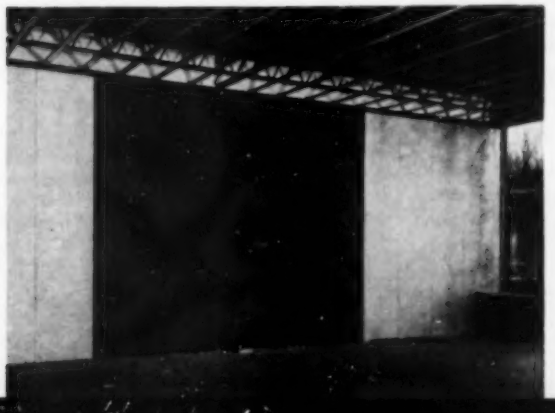




Two workmen can install fascia panel and steel molding in a matter of minutes (above). *Note finned-convectors behind exterior panels. Completed elevation shows both courses of fascia panels.*

Chalkboard panels (below) *ride along track on floor and are held in place at ceiling by steel angles. Between adjacent panels are wood splines.*



Armorply Panels For Connecticut School

When plywood and sheet metal are laminated with plastic-resin adhesive, the combined materials produce far greater strength and flatness than either could develop individually. At the recently completed Newfield Elementary School, Stamford, Connecticut, Architects Sherwood, Mills & Smith have used three such laminated products—Armorply fascia, chalkboard, and zinc-coated steel panels—not only for improved appearances but also for reduced construction time and costs.

On the exterior elevations, 2700 sq ft of fascia panels have been installed above and below the glass windows (*upper photos*). As all panels weigh only 4¾ psf and were prefabricated to detailed dimensions, they could be quickly placed in position and made captive by the simple use of steel molding strips. Each laminated panel, measuring approximately ¾″ in thickness, has an 18-gage porcelain-enameled steel exterior surface (with return flanges on all sides), a 5-ply fir plywood core, and a .015″ aluminum backing that assists the efficiency of adjacent heating units by virtue of its reflectivity. Although maximum panel sizes are limited by firing problems when the porcelain enamel is fused to the steel in the kiln, units as large as 3′ x 10′ and and 4′ x 8′ are readily available. The manufacturer's price today is about $2.50 to $3.00 per sq ft.

Other types of Armorply separate the classroom areas (*lower photos*). Most dramatic are the floor to ceiling green-colored chalkboard panels, centered on the room, that also attract magnetic devices used in conjunction with visual training aids. A total of 1280 sq ft of these 2′ x 10′ panels was erected at Stamford. As sound transmission is related to the mass of a wall, a weight of 10 psf, providing a 39 decibel rating, was specified for the classroom panels. Chalkboard Armorply is made up of three separate panels. Both exterior laminations are composed of 18-gage porcelain-enameled steel (special frit for chalk

(Continued on page 162)

p/a products

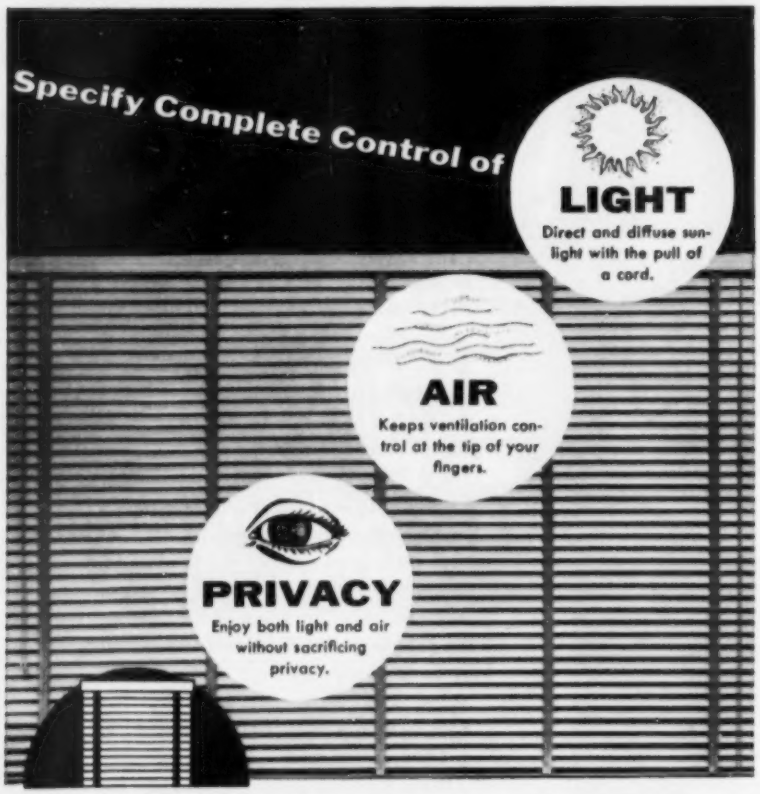
(Continued from page 161)

writing), ¼" plywood, and 24-gage zinc-coated steel. Three and one-half inches of Celotex make up the interior core. On both flanks of the chalkboard panels, zinc-coated steel units (for better painting surfaces) were erected. A total of 5000 sq ft was installed. To provide the necessary 10 psf, two 16-gage steel sheets were laminated to a 4" Celotex core.

Both types of panels are held in place by three devices: wood splines between units, structural steel angles at ceiling, and continuous track at floor level (half-spline width). Although no precise figures can be cited for erection costs, it was observed at the Newfield School that two mechanics and a helper were able to erect a 10' x 30' area in 24 man-hours or less.

Panels at ends of the school building are similar but the steel or porcelain chalk surfaces were laminated to ½" plywood cores backed with .015" aluminum.

For future chalkboards of the above type, the manufacturer will offer a lamination of two 18-gage porcelain-enameled steel sheets separated by a 2" gypsum core (also weighing 10 psf) costing from $3.50 to $3.75 per sq ft. (Silver-gray color is also available and is ideal for film screen purposes.) Side panels will similarly consist of two 24-gage zinc-coated steel sheets laminated to a 2" gypsum core and are presently quoted at $1.25 to $1.40 per sq ft. United States Plywood Corporation, 55 West 44th Street, New York 36, New York.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Electric Heating Controls: new line of automatic controls specifically designed for electric heating includes improved line-voltage thermostat, silent relay for use in very high-amperage installations, and "round" thermostat now available for use with silent relay systems in homes. Last has single dial, improved mercury switch, heat-leveling adjustment providing control accuracy to within one-half degree, and plastic ring cover. Minneapolis-Honeywell Regulator Co., 2753 4th Ave. S., Minneapolis 8, Minn.

Precipitron: new ceiling-suspended, electrostatic air cleaner for residential use is designed for installation in main return-air duct of forced-air heating system. Average-sized model removes 90 percent of airborne dust and pollen in 5- to 7-room house, handling from 1000 to 1200 cu ft of air per minute. Steel cabinet with gray enamel finish, aluminum internal components, water and drain line connections. Westinghouse Electric Corp., Air Conditioning Div., 200 Readville St., Hyde Park, Boston 36, Mass.

construction

Thinner-Gage Aluminum Sheets: new aluminum corrugated roofing and siding (.024 in. thick) of same alloy as standard .032 in. sheets, is available for narrow spans in roof support structures that do not require

(Continued on page 164)

BEAUTIFUL NEW Oberlin College Auditorium

The huge, curving walls have already become a favorite backdrop for amateur photographers on the Oberlin College campus.

The front entrance of $1,200,000 Hall Auditorium in early afternoon. Shadows form changing, interesting patterns across the serpentine wall of the unusual structure.

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Builders and contractors have given excited approval to this beautiful structure. The exterior design is ultra-modern and breath-taking. The general inside effect is one of regal magnificence—including an acoustically perfect auditorium that seats 500 persons.

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(Continued from page 162)

extra high beam strength of standard gage. Supplied with corrugations ⅞ in. deep and 2.67 pitch. Same fasteners and erection methods used as with .032 in. sheets. Aluminum Co. of America, 805 Alcoa Bldg., Pittsburgh 19, Pa.

Fasco Threaded Spacer: new spacer for attaching conduits, cables, instruments, and other equipment to sandwich-type structure, soft woods, or any fragile structure where fastening takeup is limited to specified grip length. Made of anodized aluminum alloy, spacer has tapped sleeve which receives attaching bolt and eliminates need for nut. Developed especially for light load applications. The Delron Co., Inc., Fasco Div., 5224 Southern Ave., South Gate, Calif.

DeltaWood Fencing: new 8' cedar units, packaged and ready to assemble, available for fencing, decorative battens, concrete forms, stage-set construction, and light construction such as camps and farm buildings. Pieces cut from 4 x 4's into triangular shape and end trimmed to 45° angles. Lengths: rails, 96 in.; vertical pieces, 42⅛ in.; decorative supporting blocks, 6 in. Rails and verticals scored on 6 in. centers. DeltaWood, Inc., Tigard, Ore.

Wheeling's Engineered Lath Package: diamond-mesh lath now available in 50-bundle (500 sheet), compact units packed and banded at factory; designed for swift handling with fork truck or crane. Packaging method features safer handling, increased storage space, cleaner method of identifying lath weights, and numbered tags. Lath is flat, free of camber, with uniformly parallel sides. Selvage edge eliminated to minimize build up where sheets of lath must overlap. Wheeling Corrugating Co., Wheeling, W. Va.

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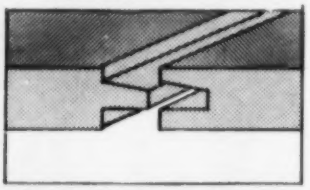

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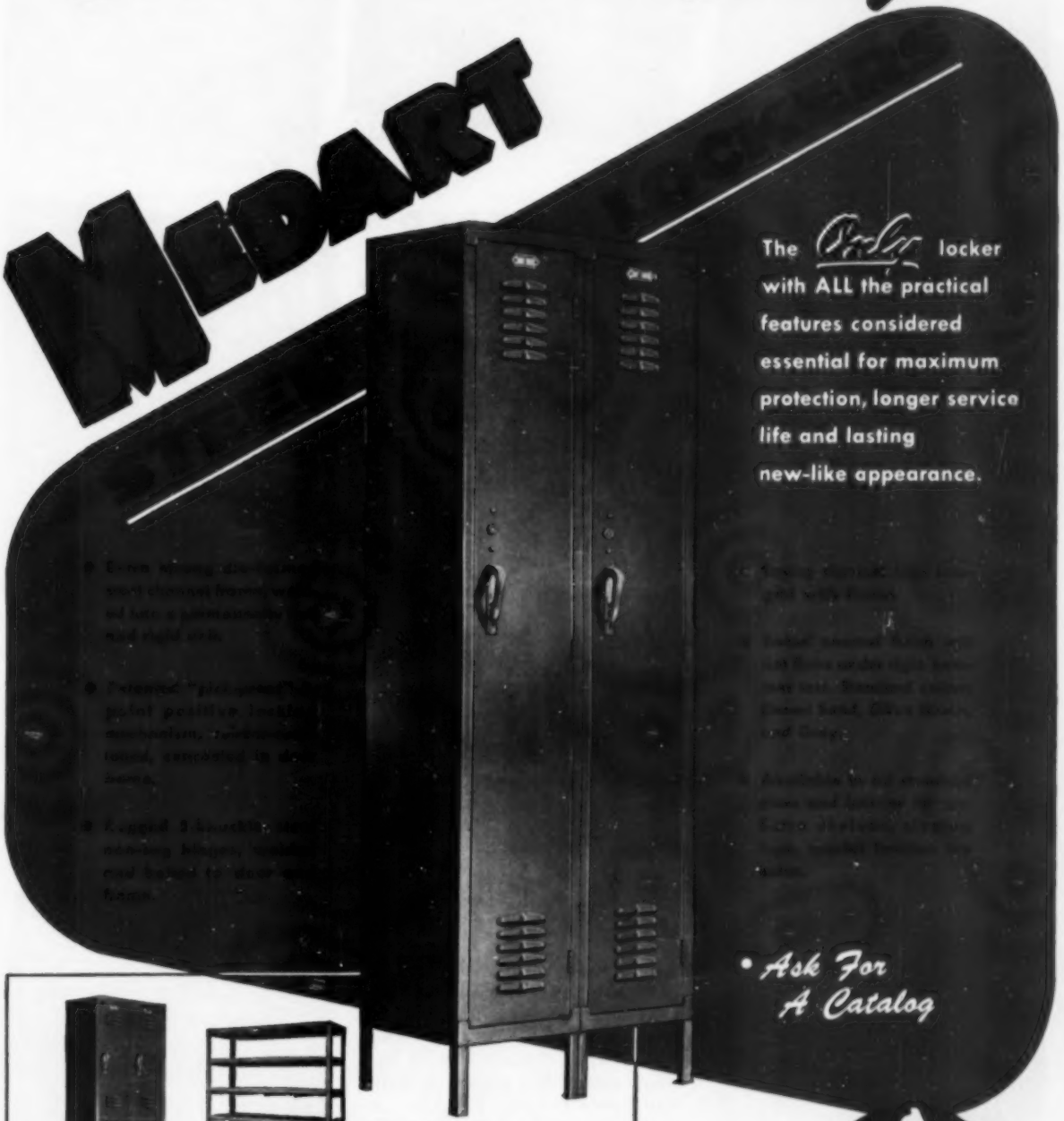

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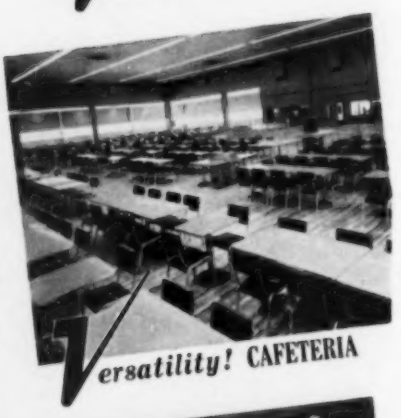

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out of school

"The time for education is short. It lasts only from the cradle to the grave. What man does with his education after that is his own business." The Old Professor

the structure of architectural education

The composite structure of the education of architects and city planners is complex, although perhaps no more so than that of the other professions. However, the complexity of the structure may obscure both its strong and its weak points. In the several years in which we have been exploring the subject in these pages, I have discussed a wide variety of problems directly or indirectly related to the education of architects and planners. Some of these have been detailed at length. However, I have only rarely mentioned the complete structure itself, the range of levels within it, and the related organizations which support and influence it. It is very important that every student, every teacher, every candidate for professional licensing, and every practicing architect knows just where he stands in his educational career at any moment of time. Above all, he should keep abreast of changes taking place within the fabric of the structure of education and avail himself of new opportunities to educate himself and his associates. It should always be remembered that education is a continuing, cooperative device whereby each and every one of us not only furthers his own self interest but also the general welfare of man. The education of architects and planners is of particular significance to the general welfare. Each of us, in the pursuit of our calling, creates the communities of man within which life in all its aspects is housed.

In the arduous earning of a livelihood we sometimes forget the social significance of each one of our undertakings. The building of great architecture, whether the smallest of houses or the largest of cities, is both a responsibility and a cause. Our united devotion to such a responsibility and such a cause should place the continuity and the soundness of our training in the performance of our duties ahead of all other of our interests. And no matter how advanced we like to consider ourselves in our individual careers, we must never lose sight of two facts, first that there is always more to learn and second, that those who follow us must be instructed by us to carry on where, sooner rather than later, we leave off. Immortality justly comes only to those who have built well and who have trained the next generation to build even better.

One further word of suggestion here on an approach to the structure of architectural education. By the obvious nature of the individual in each one of us, edu-

(Continued on page 168)

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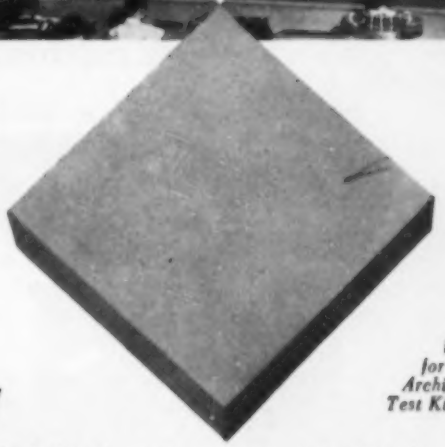

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out of school

(Continued from page 167)

cation is a highly personal process. Aldous Huxley was right, several years ago. when he described in his *Brave New World* the possibility of mass education through mechanical "conditioning" systems. We have seen this in our own time in Hitler's Germany and Stalin's Russia. But I prefer what de Tocqueville[1] said 114 years ago:

"The most democratic country is that in which men have carried to the highest perfection the art of pursuing in common the object of their common desires, and have applied this science to the greatest number of purposes." He goes on to say: "In democratic countries the science of association is the mother of science; the progress of all the rest depends upon the progress it has made. If men are to remain civilized, or to become so, the art of associating together must grow and improve in the same ratio in which the equality of conditions is increased." These considerations are still important. For some of us there is a stigma in participating actively in the democratic necessities of our common interests. But can we be superior to these interests? There may be a warranted suspicion that our valuation of our own ego in such circumstances is greater than would justify an isolationist stand. It is certainly clear that in the history of our profession there are many who have remained aloof either in the hope (or belief) that leadership is achieved through a stand alone on a mountain peak, with each imitator wigwagging his admiration from lesser peaks.

No one of us can issue a clarion call to the educators and students and practitioners to participate actively in common organizational purpose for self-education, although the pragmatics of the situation should be self-evident. As we climb to each level in the educational structure we must pass through certain controlled doorways. These doorways are closed or opened by master mechanisms directed by certain group-controlled concepts. These are so basic that we may forget their relationships and the fact that society has developed these controls by experience and custom. These doorways to educational levels, in the United States and for our professions, in the following well-established order are: (1) graduation from public or private high school; (2) entrance into a public or private institution of higher education (college, university, technical institute); (3) graduation from any of these institutions of higher education with an architectural degree or degrees (undergraduate, graduate); (4) entering the candidate for licensing period, or first full-time employment period; (5) by examination obtaining license to practice; (6) through work experience, self education, professional association, and other means, developing and establishing a career.

There are of course variants to the sequence, but you all recognize its axiomatic nature. During the next several issues (with some interruptions and an oc-

(Continued on page 170)

[1] Democracy in America, *Alexis de Tocqueville.*

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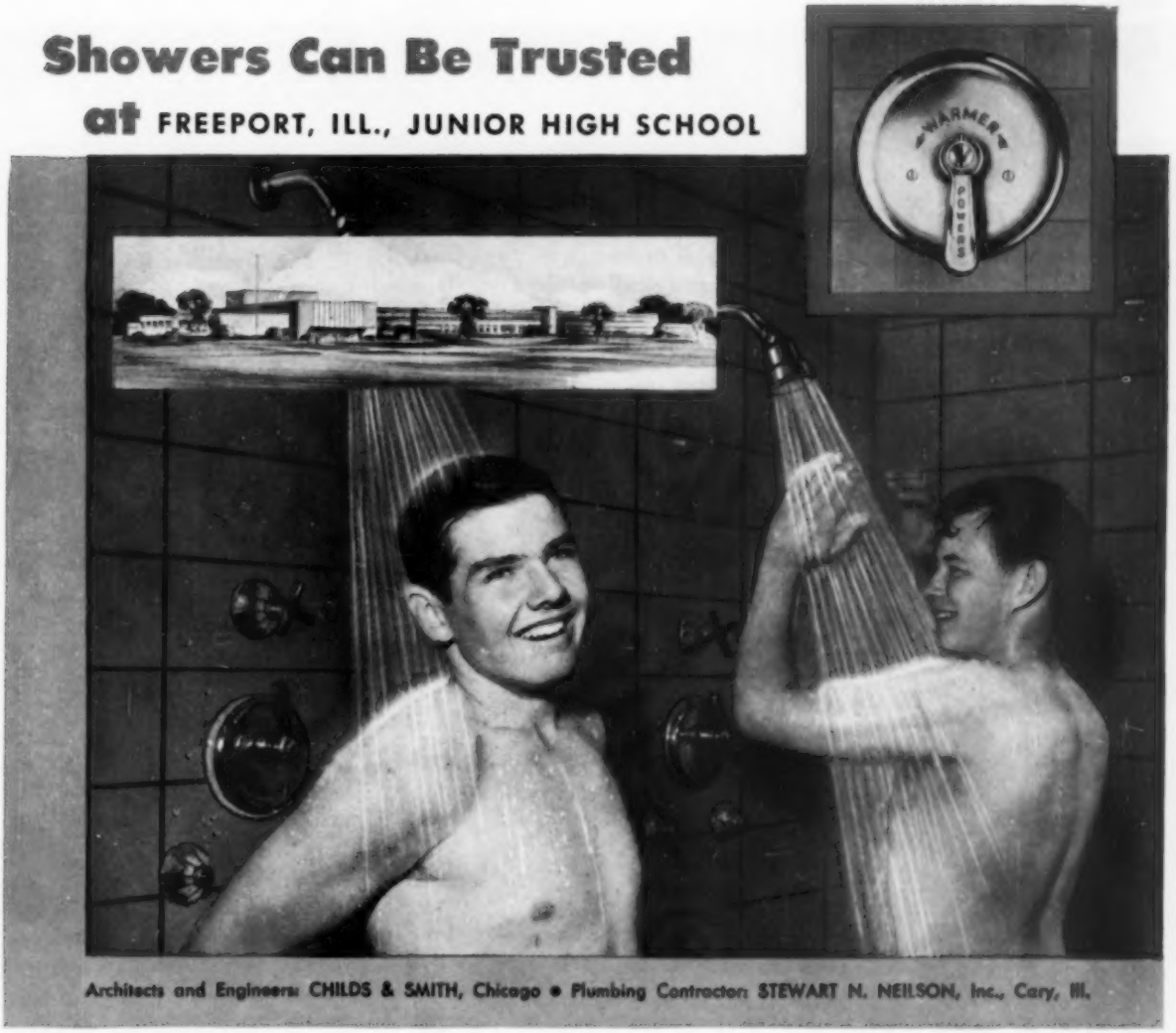

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out of school

(Continued from page 168)

casional visit to Theleme, we will climb up this ladder.

•

In January 1954 P/A, Walter Taylor's excellent article on "Architectural Education" in the October issue of *Higher Education*[2] was recommended to your attention. At that time I mentioned that there would be further detailing of the Taylor article, and it forms a part of our discussion this month. Taylor in his capacity as Director of the Department of Education and Research of the AIA, and Secretary of the AIA Committee on Education, has had access to a wide variety of surveys and studies in the field of architectural education. He has served also as a staff member of the 1950 Commission to Survey Architectural Education and Registration (*that long-awaited study due any minute, now*). From this advantageous position Taylor has had exceptional access to the facts and figures, and he has also traveled widely in his line of duty, talking education to the schoolmen and professionals. This article I am quoting from, then, represents an authoritative knowledge. Architects should read it, although it was addressed to nonarchitectural educators. I am being very generous, of course, since OUT OF SCHOOL is not mentioned in Taylor's "Selected References."

Walter Taylor did not use the sequence I have used here, but I am going to excerpt certain sections of his report and, in subsequent issues, each of various topics and subtopics will be discussed in detail by specialists on these topics—and I will attempt to correlate and add as many ideas as I can. We will start with Taylor's comments on high school training and the admission requirements to architectural education at the university level.

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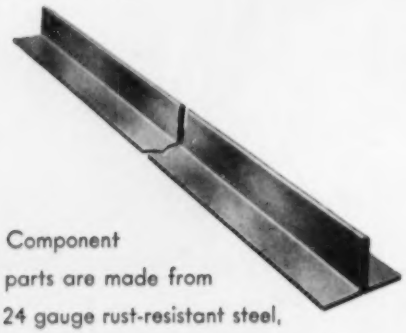

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admission requirements

"The great majority of the collegiate schools of architecture admit students who have been graduated from secondary schools, but the entrance requirements are far from uniform. Privately controlled institutions generally limit enrolment, and they are selective in terms of rank of the applicant in his secondary school and other qualifications. Publicly supported institutions, with few exceptions, can be selective only in terms of required secondary school credit in certain subjects." . . . (*I omit here the table of required subjects.*)

"Additional entrance requirements such as aptitude tests, interviews, and entrance examinations are reported in many institutions. Some publicly supported schools state that, although they are not permitted to be selective, they can effect desirable voluntary screening by these means.

"Preprofessional education in a college of liberal arts is a prerequisite for admission in 14 schools of architecture, as fol-

(Continued on page 172)

[2] "*Architectural Education*," *Walter A. Taylor*, Higher Education *October 1953, Office of Education, Higher Education Division, U S. Dept. of Health, Education, and Welfare, Washington, D.C.*

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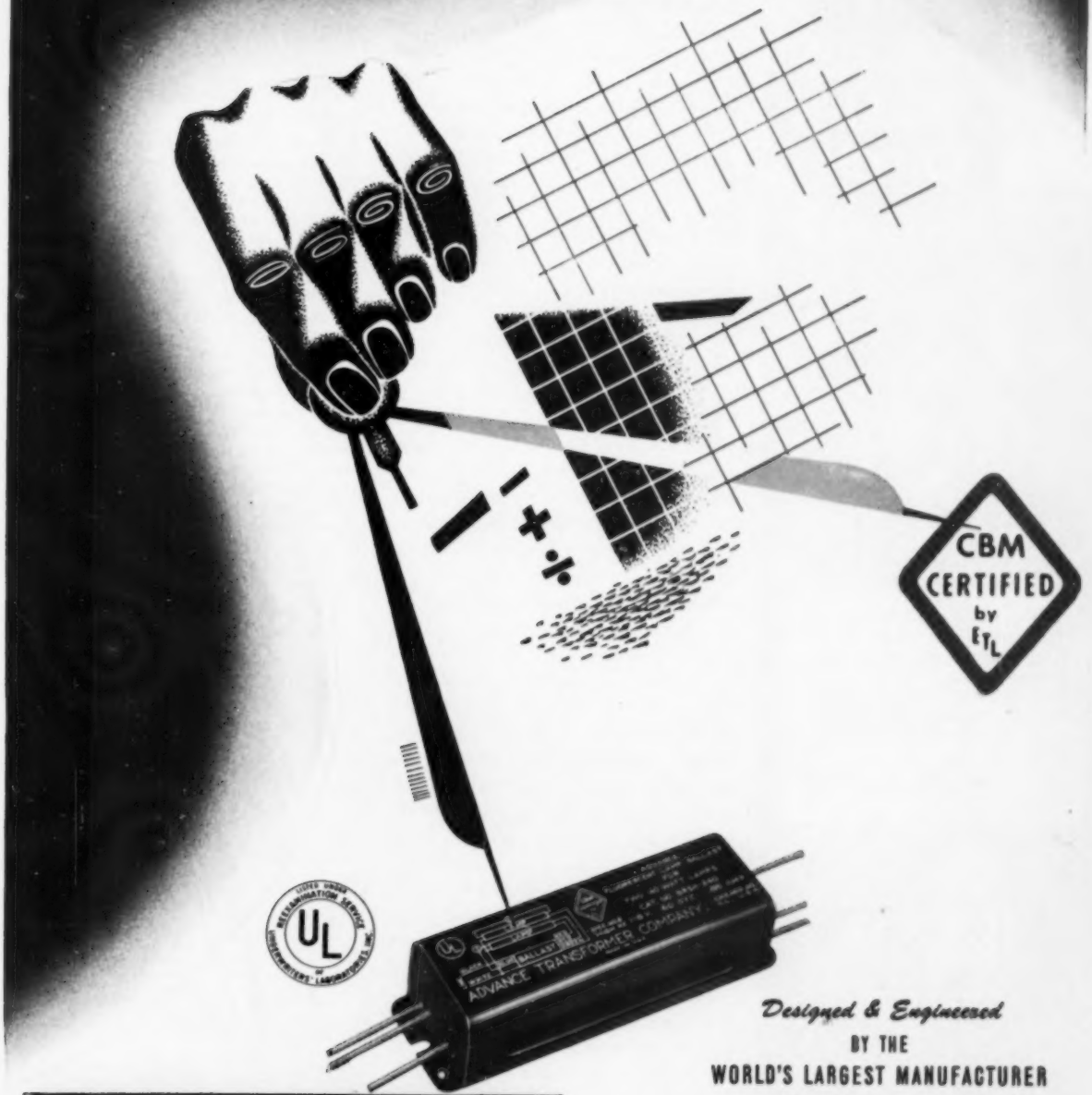

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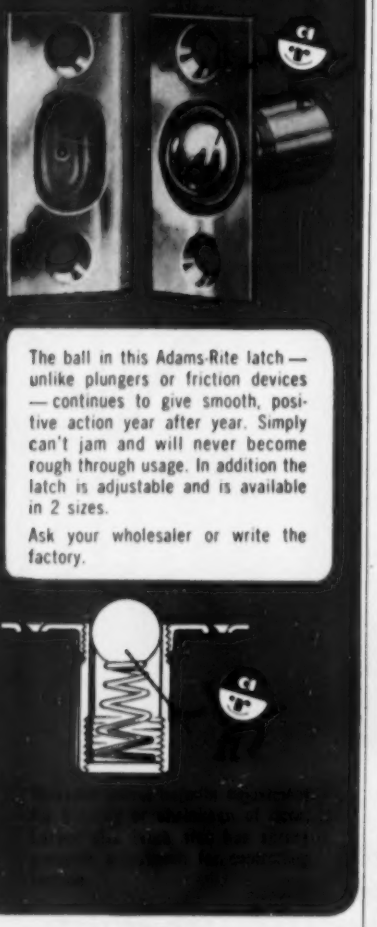

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out of school

(Continued from page 173)

lows: (a) 1 year—Universities of Minnesota, Utah, and Virginia, and State College of Washington; (b) 2 years—Universities of California, Florida, Detroit, and Washington, and Columbia, Stanford, Princeton, and Yale Universities; (c) 4 years (degree)—Harvard University and Cranbrook Academy of Art. . . .

"For the good of the profession and the elevation of professional education in architecture there should be greater selectivity in admitting new students. To admit large numbers of students without screening them carefully lowers the achievement of the professional school, wastes its energies on the incapable, and often does much damage to students who are cast out as failures.

"A few schools of architecture employ ways and means beyond the general tests in the university admission procedure to evaluate their applicants. The group as a whole needs to take steps in that direction. Several other forms of professional education have had considerable success with aptitude tests and psychological examinations. Some arrangement with the Educational Testing Service or some other testing agency to develop screening techniques for architecture might well be made.

"A 2-3 curriculum plan possesses an advantage over the 5-year integrated curriculum in that the preprofessional years, devoted to education in the liberal arts and sciences, can be used both to provide general education and to screen out the students who do not possess the capacities required to learn the profession of architecture and to succeed in practice. The obvious disadvantage in the arrangement is that it differentiates too sharply between liberal and specialized education.

"Second, a problem arises in architectural education because only a limited number of secondary school graduates who apply for admission present a sufficient mastery of such disciplines as mathematics and English and adequate intellectual maturity to undertake professional study. This situation is owing in part to the instruction provided in the high schools". . . .

(Continued on page 174)

COLESHILL HOUSE

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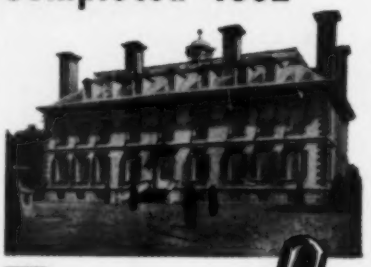
Completed 1662



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out of school

(Continued from page 172)

Four years ago, in this column, we discussed testing for admission to the collegiate schools of architecture and there is an encouraging rumor, since Taylor's article, that the Educational Testing Service at Princeton may begin soon on experiments in this field. I will report progress as it is made.

Missing in Taylor's statement is reference to career guidance and career bulletins for high school students.

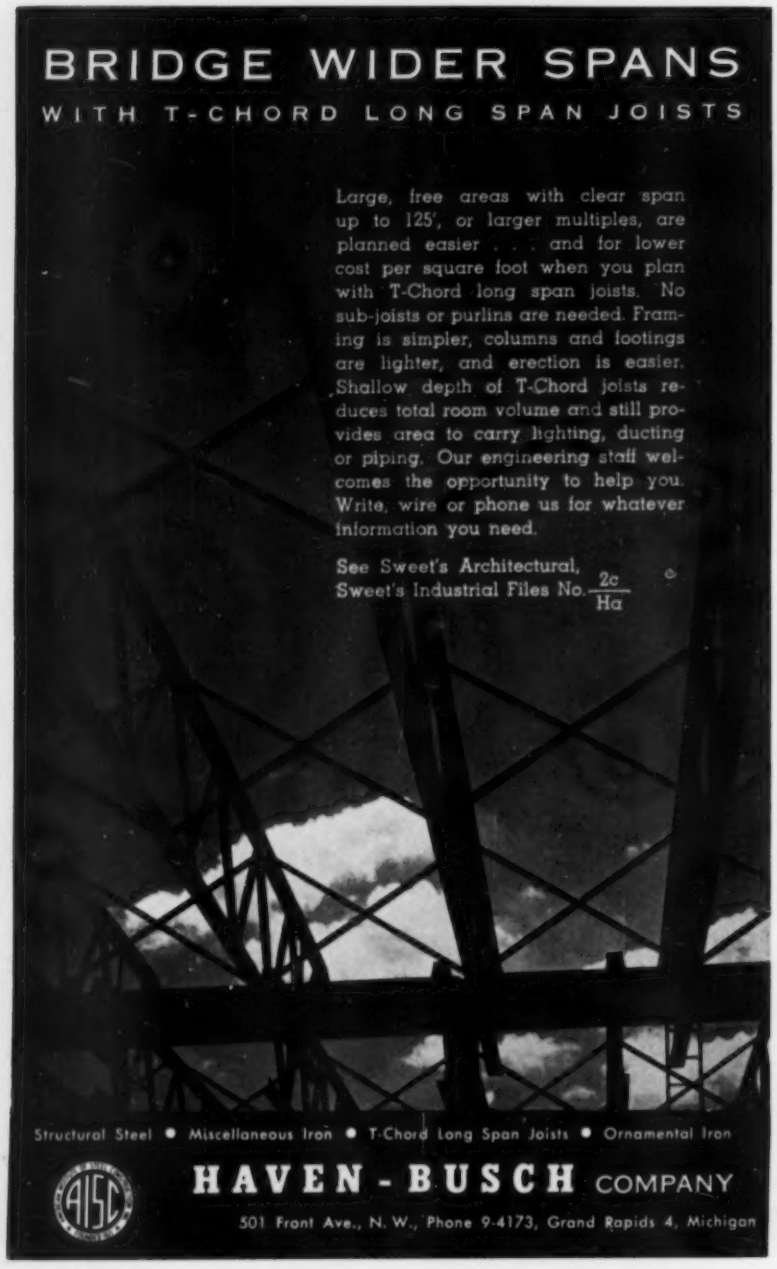
career guidance for high school students

While career guidance is a relatively new field at any level of education, it is of the utmost importance to prospective or hopeful architectural students. Scientific career guidance methods are being developed in the normal and educational schools throughout the country and many progressive high school leaders are developing career guidance clinics for use of faculty and students in the junior and senior years. Since many high school and prep school students are technically minded but are unable to distinguish between the handicrafts, the business of building, engineering, architecture, and a wide variety of job possibilities, theirs is a hopeful but undirected and unscientific approach to a livelihood, a career, a lifetime of satisfaction or defeat. This first chance at a choice can be of the utmost importance. The career counselor of the high or prep school senior becomes a pivotal man in the student's future and a first important contact point in the development of each new generation of architects, year in and year out. And yet I doubt if many local AIA chapters have ever invited career counselors to an indoctrination course in the whys and whats of architecture.

Curiously enough, there is at present no adequate, illustrated, career bulletin on architecture, city planning, or the allied arts of landscape architecture and interior design. The catch-as-catch can method of moving students into careers with the hope that a fair percentage will survive is one of the most curious laissez-faire concepts in our whole educational credo. While the Committee on Education of the AIA (which I chair for the moment) has been talking in a hopeful way of doing a real career bulletin on architecture for some time, no one has gotten around to it. I, for one, feel that a career bulletin must be accompanied by specifications and advisory material to career counselors as to how it might best be used. In any case it would be foolish to dump large quantities of booklets on the open market with the hope that they would land effectively. The choice of a career can never be soundly made by an adolescent's reading in a desultory fashion a batch of "come ons" from the professions and the business world.

One of the profession's first real jobs is to advise high and prep school principals, career counselors, and parents of young hopefuls, as to the advantages and

(Continued on page 178)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out of school

(Continued from page 174)

perils of architecture and planning as a career or as careers. The constant regeneration and advancement of architecture will depend on those bright-eyed, pimply youths, all bebop and blue jeans, whose breaking voices and slattern jalopies hardly presage the dignified gent who, glass and cigar in hand, will one day preside at a Producer's Council meeting of the Local Chapter of the AIA, or who may one day sit in one of the august seats of the mighty Board of Directors of the Institute itself. Or perhaps these are the future prima donnas of the profession—the coming avant-garde. Or maybe they will be no more vaunted than those cherished and invaluable draftsmen, architectural engineers, office managers, and specification writers who build no buildings in their own name, but without whom no buildings of consequence get built.

Besides career counseling and the counseling of career officers by the architect, besides the preparation of career bulletins, there are several other important elements in the advising of prospective or inquiring architectural aspirants which do not seem to have been discussed adequately anywhere. They will be talked about in this column as opportunity affords but can only be mentioned briefly this issue. Taylor referred to the pretesting of aspirants. We hope to go into detail on that with possibly a guest expert to talk on this important matter. But there are still a whole series of devices needing improvement and problems to be corrected. For instance, what advisory service can be provided to high school counselors, students, parents, and collegiate admissions officers to help match students with certain interests and qualifications to schools with similar interests and qualifications? What will be the point of testing a high school boy for aptitudes, competencies, and everything else if he can not be sent to a collegiate school where his deficiencies may be corrected and his abilities developed? We recognize the need for a wide variety in the character of our architectural schools. How do we make an asset of this variety?

Another need of the counselors, students, parents, and collegiate admissions officers—better college catalogs. I have mentioned this frequently in these columns. What are available to the applicant are dull, inexpressive documents crammed with unilluminating course titles, misleading generalities about the curriculum, confusing details of dates, hours, credits, and other schoolmen's jargon. These drab, usually unillustrated, out-of-date, and quite inhuman documents are the career bulletins (willy-nilly) which the freshmen, standing in long queues, study on registration day. No wonder there are so many misfits! No wonder the mortality rate is high!

In summation of what you have just read, perhaps the most important point is that the structure of architectural education can be no stronger than its lowest level. We find, at the end of adolescence and the beginning of adulthood, an inadequate program of advice and guidance,

(Continued on page 180)

designed with

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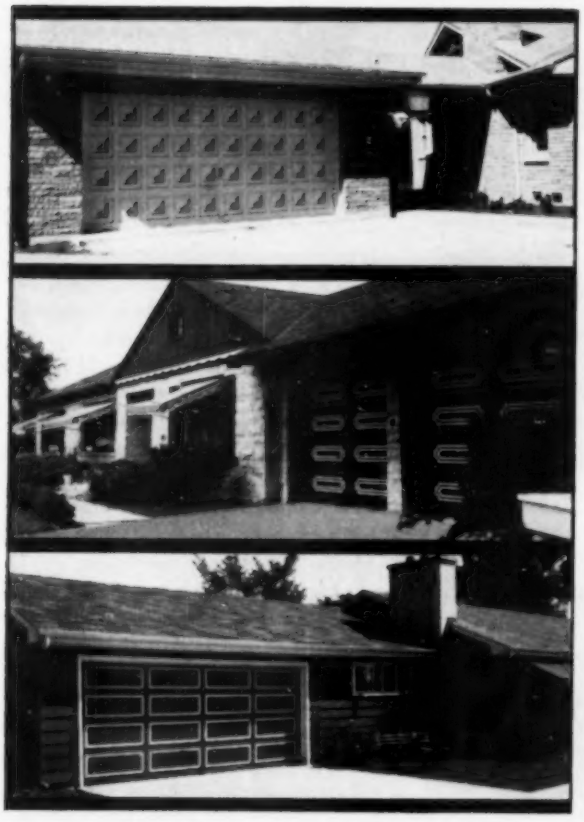

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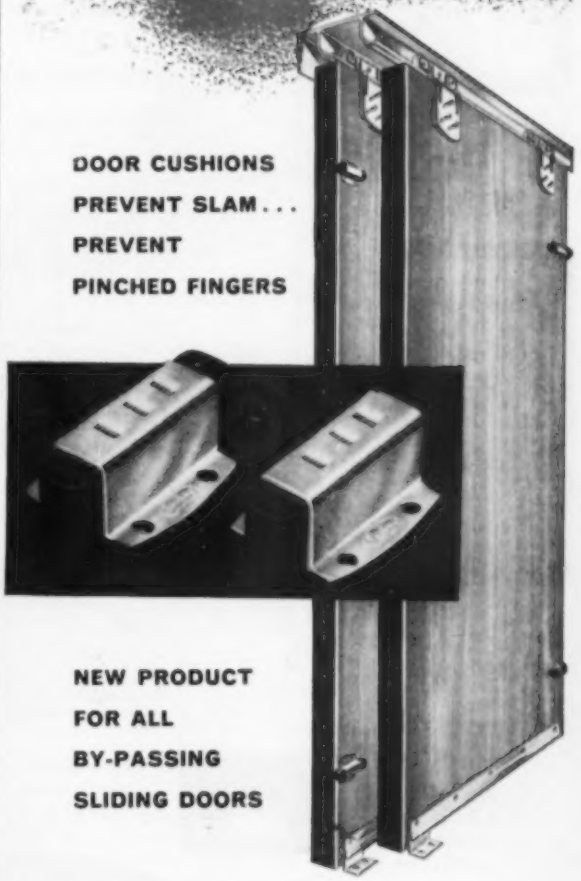

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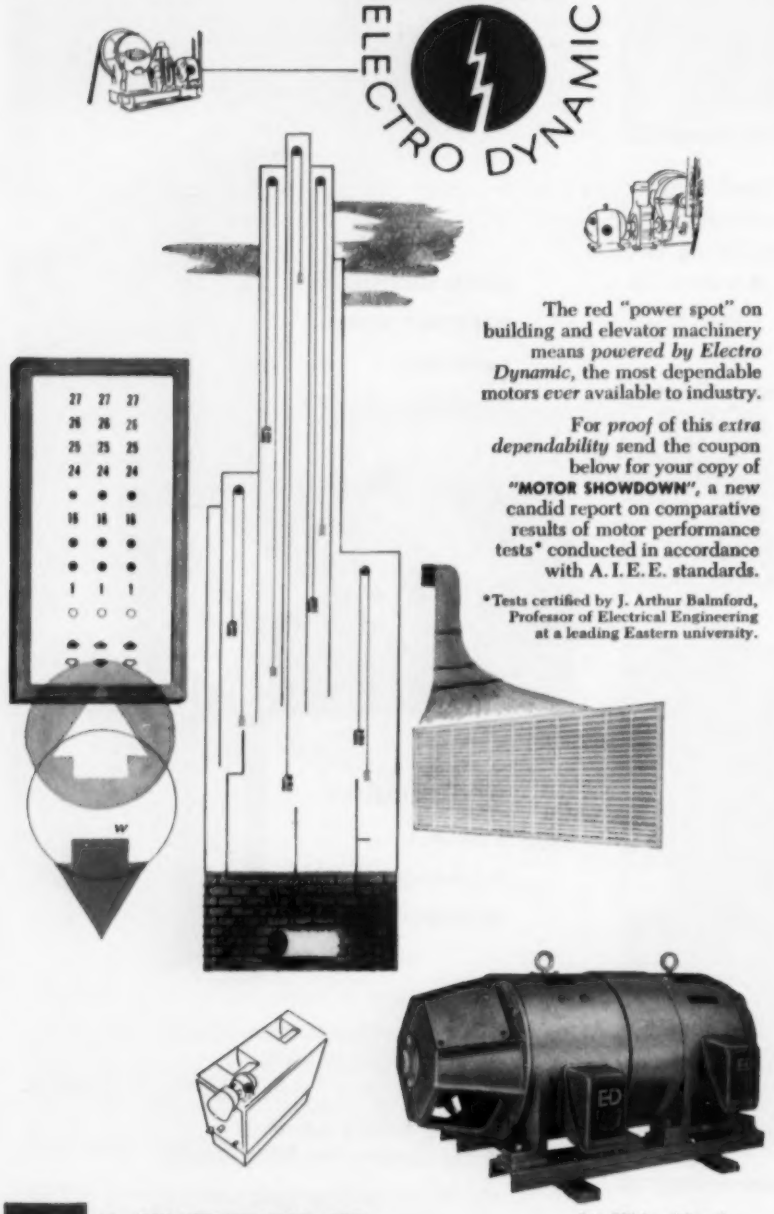

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out of school

(Continued from page 178)

no over-all standards or organized approach—no evidence of the "science of association." I see no reason for being complacent about such a situation.

letter to the schoolmaster

Dear Carl: I often think back to your visit to Vancouver, and I have a very personal interest in those excellent articles which you write in PROGRESSIVE ARCHITECTURE.

There is a possibility that I may go on an extended tour through the United States and Europe, to visit schools of architecture. My prime aim would be to acquaint myself with what is being done, to try to bring the teaching of architects up to date in relation to the changing nature of the architectural profession (ever increasing reliance upon consultants as a part of the design team), and in relation to an increased integration with the construction industry.

I am not satisfied that the old type of curriculum, which is now prevalent in most schools in the North American Continent and is certainly uniform across Canada, is the one most suited to the new position in which the architect is finding himself, more and more, in the process of building construction.

I am sorry to bother you about this, but I feel that there is no person better equipped to give me the names of schools in North America and Europe which I should visit, because of their experiments along the lines mentioned above. Your guidance would be greatly appreciated.

FRED LASSERRE, Director
School of Architecture
The University of British Columbia
Vancouver, Canada

To readers of OUT OF SCHOOL *and* LETTERS TO THE SCHOOLMASTER: *this letter from Professor Lasserre calls for a reply not only from me but from those of you who have something to offer to him. May I suggest to the schoolmen who may read this letter of Professor Lasserre's that you write him directly if you feel you have something to offer him.* C. F.

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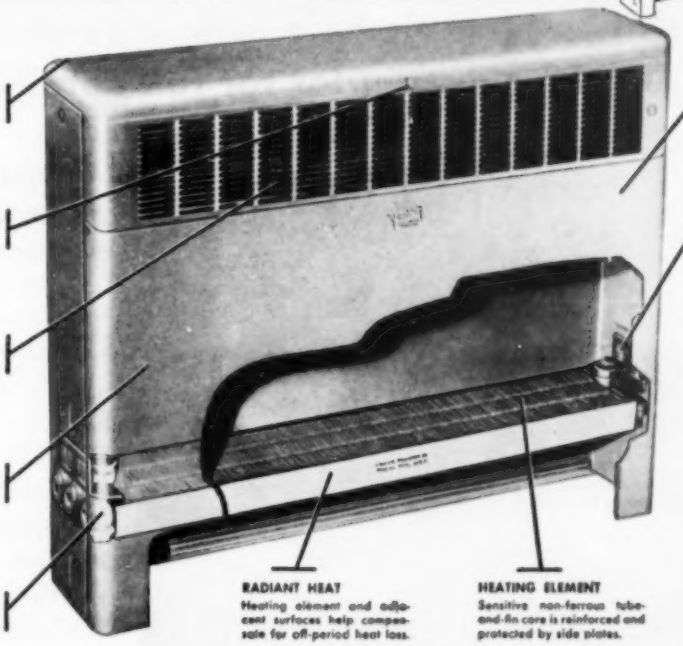

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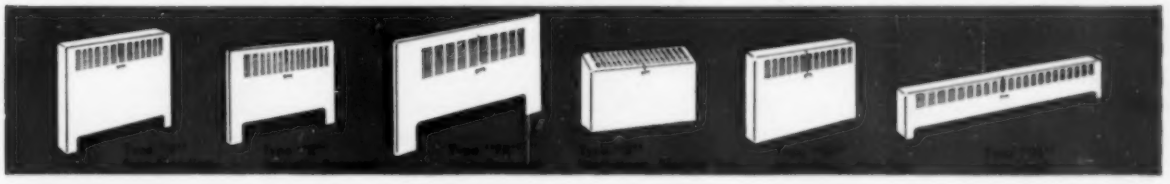

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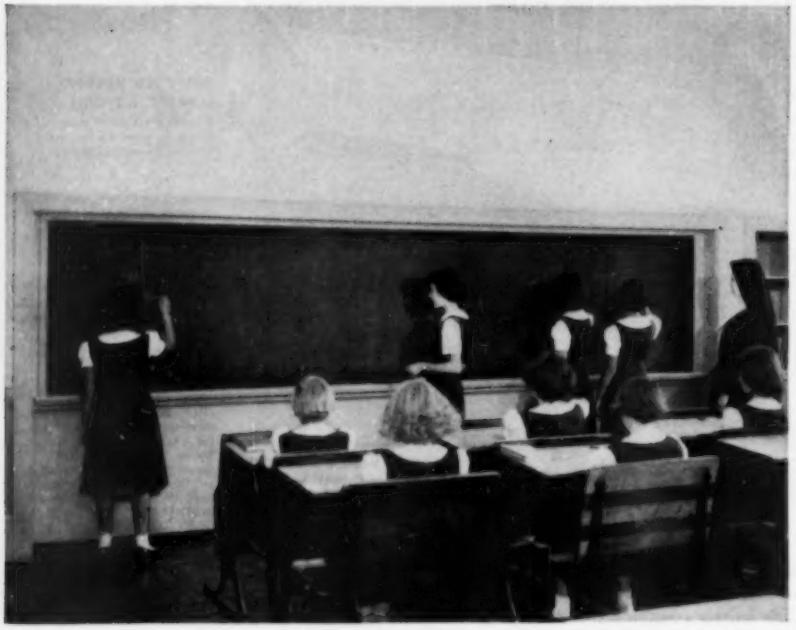

MORE FLOOR AND WALL SPACE is usable in this classroom through installation of a Barcol WARDROBEdoor. Shown here equipped with a chalkboard, its wide, unbroken, flat surface can also be furnished with a tackboard or combination of the two, or with any desired veneer finish. Note examples on opposite page. Conserves classroom area too—space-saving, vertical-action WARDROBEdoor requires no extra floor space for clearance.

Left: St. Augustine School, Rochester, N. Y.

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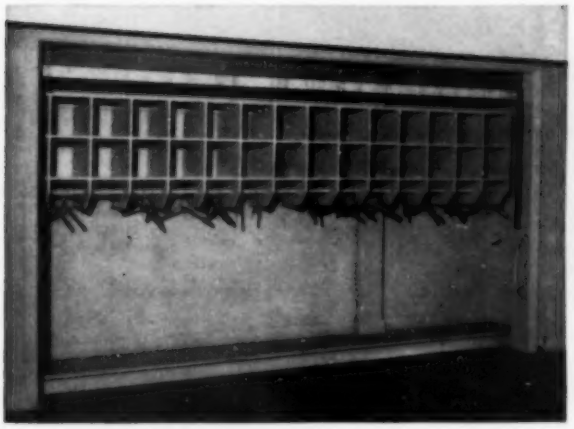
Right: Heuvelton Central School, Heuvelton, N. Y.



Note footwear ledge in custom interior at Craig School, Schenectady, N. Y.

Hallway installation of WARDROBEdoors at Amherst School, Snyder, N. Y.

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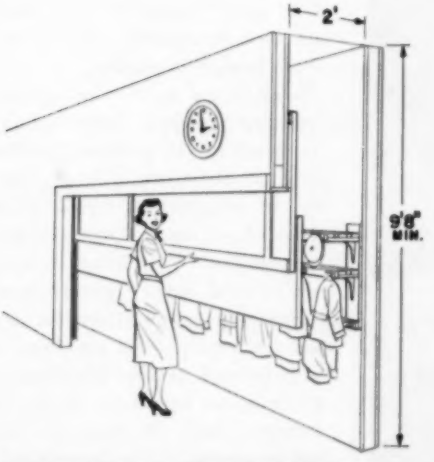
Cork tile on tackboard area at Craig School, Schenectady, N. Y.



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books received

Faith Builds A Chapel. Winifred C. Boynton. Reinhold Publishing Corporation, 330 W. 42 St., New York 36, N. Y., 1953. 135 pp., illus., $8.50

Contemporary Architecture of Japan. Shinji Koike. The Shokokusha Publishing Co., Inc., 11-2 Chome, Hirakawa-cho, Chiyoda-ku, Tokyo, Japan, 1954. 119 pp., illus., $7

31st Hospital Purchasing File 1954. The Modern Hospital Publishing Co., Inc., Purchasing Files, Inc., 919 N. Michigan Ave., Chicago 11, Ill., 1954

English Furniture. The Georgian Period (1750-1830). Margaret Jourdain and F. Rose. B. T. Batsford, Ltd., London, England. Distributed by John de Graff, Inc., 64 W. 23 St., New York 10, N.Y., 1954. 210 pp., illus., $12.50

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stimulating speculations

Survival Through Design. *Richard Neutra. Oxford University Press, 114 Fifth Ave., New York 11, N.Y., 1954. 384 pp. $5.50*

At an important point in an important career devoted to practicing, teaching, writing, talking — and thinking — about architecture, Richard Neutra has written a book which is a much needed addition to the literature of design. It is the first attempt that I know of to bring together a report on many scientific studies in other disciplines, to speculate on their possible application to the design of the environment, and to estimate the realistic effect of the knowledge we now have available—ill effects through misuse or nonuse, salutary effects through further investigation and careful use. It is a refreshing book to have and to read at this time. There are no appeals to emotions or prejudices, no attempt to categorize what has been done and what can be done by style tags, no dogmatic declarations or defamations.

If the book has a fault, it is the apparent repetition of certain points, inevitable in a collection of essays which Neutra calls in his Preface, "a loose yet linked cycle of writings collected over almost a lifetime." It would be interesting to know the dates in that productive lifetime (and the circumstances, in relation to the projects he was working on at those times) of the various essays. There is no table of contents, and no index. Forty-seven "Chapters" are headed by summary paragraphs with a few key words brought in capitals.

Organization of the book progresses through a discussion of the need for, and the possibility of planning (philosophically considering the question, "can destiny be designed?"); present v. former standards of design (tradition, technology, function, "pure beauty v. pure reason"); total sensory perception of the environment; space in relation to time; and the aspect of the discussion which gives the work its title—physiological and psychological impacts of design. There follows a series of essays on "control" and ownership, and a discussion of team design and the relation between designer

(Continued on page 188)

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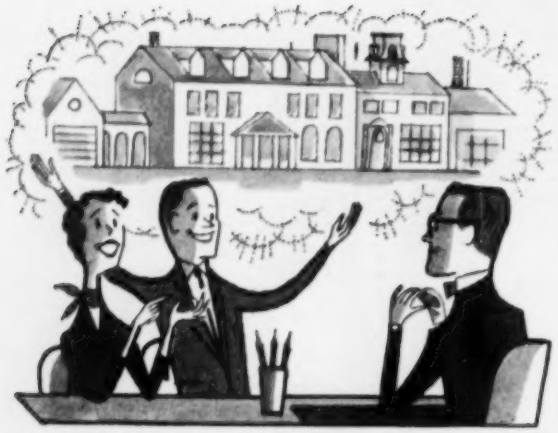
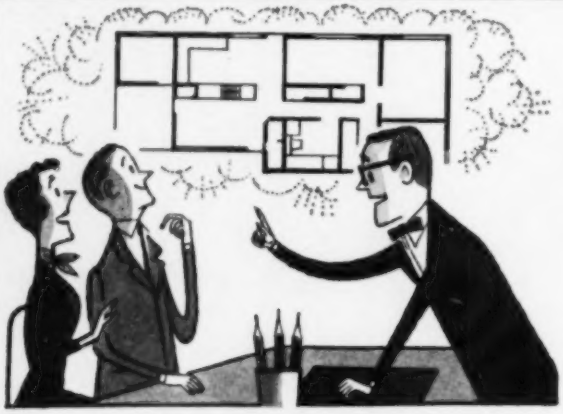


1 Well, they say, we'll need a bedroom for ourselves and two for the children and Aunt Edna visits so often we'll need one for her. John needs a den and the children a playroom and I want an enormous kitchen.

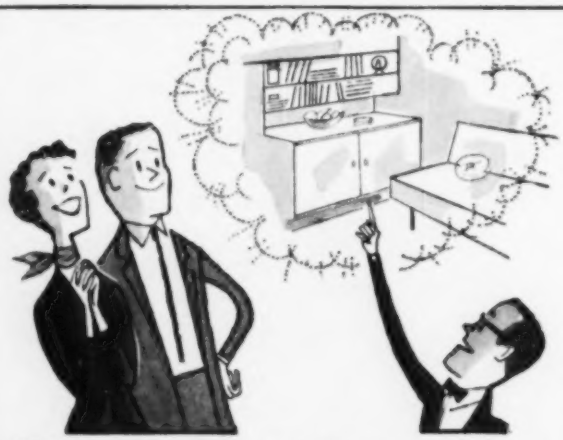
2 My, you think, he must be in oil or scrap iron at least. The house will be Carrier air conditioned, of course. They might even want a marble bath. Perhaps I should hire an extra draftsman and where can I take them for lunch?

5 They'll save, you say, on movable sash and screens. They won't need an attic fan, porch or breezeway. They won't spend as much on dry-cleaning drapes and upholstery. Paint and paper will stay clean longer.



6 You explain that they won't need wings and ells to catch a breeze in their Carrier air conditioned house. A compact, rectangular floor plan will reduce costs. It will be more convenient; they'll save thousands of steps.

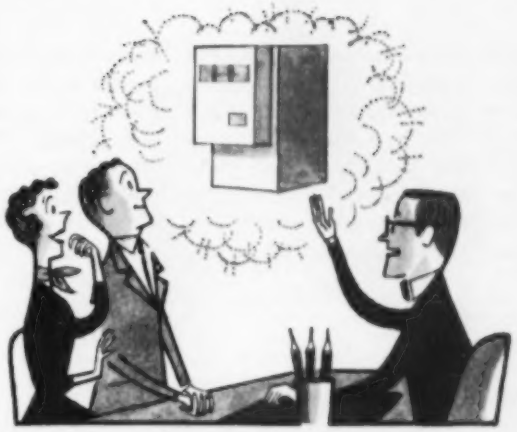
9 Moreover, you say, the whole house will be a better house. Since the windows are no longer important to comfort, they can be grouped for a feeling of space, better light, and a view. You can put them high or low.



10 Grouping the windows, you add, permits solid walls into which you can fit built-in storage units. Solid walls make furniture arrangement easier, keep out the hottest sun of summer, shut out an undesirable view.

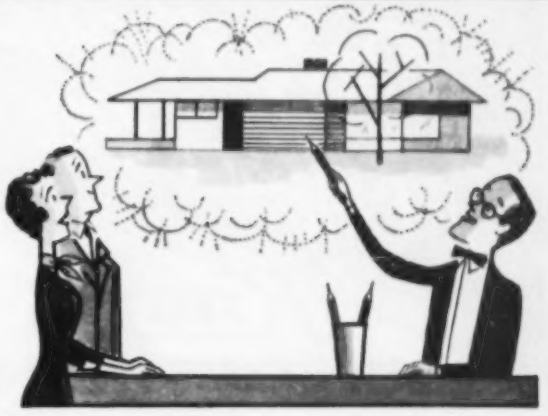
FERENCE

3 Then they tell you they've got a 70′ x 100′ lot and finances to match. You decide on linoleum instead of marble for the bathroom. You fire the draftsman. And decide to have your receptionist bring you in coffee and a sandwich.



4 But, you resolve, the Carrier air conditioning stays—and you tell them why. You explain that in a house planned around air conditioning, the cost of the air conditioning is small. Because it substitutes for many "necessities."

7 But, they ask, doesn't air conditioning cost a lot to operate? Not at all, you tell them, the refrigeration unit runs for a full day on small change. And an air-cooled condenser eliminates the expense of water.



8 More than that, you'll design the house so it lets less heat in, saves them the cost of taking it out. You'll use, you say, a light-colored roof, overhangs to shade the windows, small windows or none on the west.

11 They've heard something about these ideas before? Yes, you say, it's the Carrier Weathermaker Home idea . . . the idea of a home planned around its air conditioning. Well, they ask, can they still have four bedrooms?

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(Continued from page 184)

and work crews—fascinating reading and penetrating thinking, but to this reviewer somewhat an interruption in the theme of the book. The argument then picks up with the effect of design on "outer life as well as inner balances," with a strong plea for research into "the designer's professional task in terms of valid requirements of the human organism." A long chapter at the end discusses community planning as an art, and contends that a large planning advisory board is needed, "chaired by an expert in biology." A final summary points to the proud position of the art of design ("it cannot be replaced by science or technology") and repeats that the designer "must learn to respect science as a base and corrective, but . . . not use it in cold blood."

This is a tremendous field to range over, and the sum total is a powerful argument for more thoughtful and less vague, haphazard, or preconceived design approaches. Two aspects of the book strike one as most important contributions: its calmness and "scientific" approach in the best sense (lack of dogmatic, hurried conclusions; presentation of evidence, with suggestions as to application); and the encouragement it should give to further study in many scientific fields, relating design to stimuli. behavior, and purposeful action.

The nondogmatic manner in which the book is written may be sensed through two examples. Tradition, "the pleasure of recognition of the familiar," is not discarded, but is studied carefully and objectively, in relation to the psychological understanding of *habituation* and *canalization*—and also in reference to its antithesis, shock. And then beauty, that abstract which usually stops all such discussions, is by no means discarded in Neutra's thesis, nor is the act of intuitive creative design on the part of the individual: "He sometimes accomplishes his most important work in the fraction of a second." But this also is studied objectively, in relation to physical as well as emotional factors. As he says, "Any doctrinaire division of the total concept into the esthetic and the nonesthetic would be artificial and would cloud rather than clear the insight. . . ."

It would require someone who had read with as catholic interest as Neutra's own to evaluate his choice of sources from which to illustrate his points. Actually I doubt whether this is too important in an appraisal of the book. We know of certain studies to which he points, already familiar to the design professions: Harmon's physiological experiments in Texas classrooms; Ames's experiments at the Dartmouth Eye Institute. Some of the behavior studies he relates to design are well known to the layman; others are not. The point is that study *of this sort* is considered, not as isolated activity, but in relation to other experiments in other disciplines, and in relation to design problems. No one realizes more than Neutra the preliminary nature of his outline; his

(Continued on page 194)

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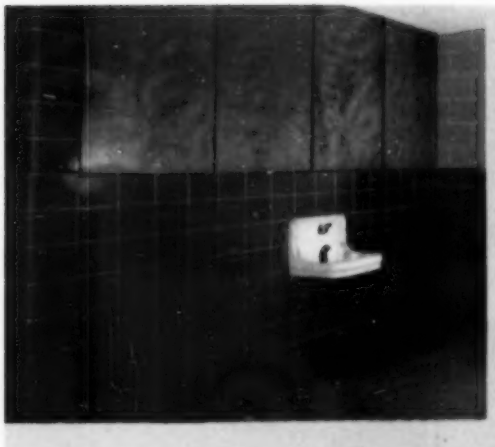

Mosaic's new 9" x 6" x ½" Glazed Wall Tile on corridor wainscot, Foothills School, Boulder, Colo. Robert Ditzen, Architect. Reeves-Ryan Tile Co., Tile Contractor.

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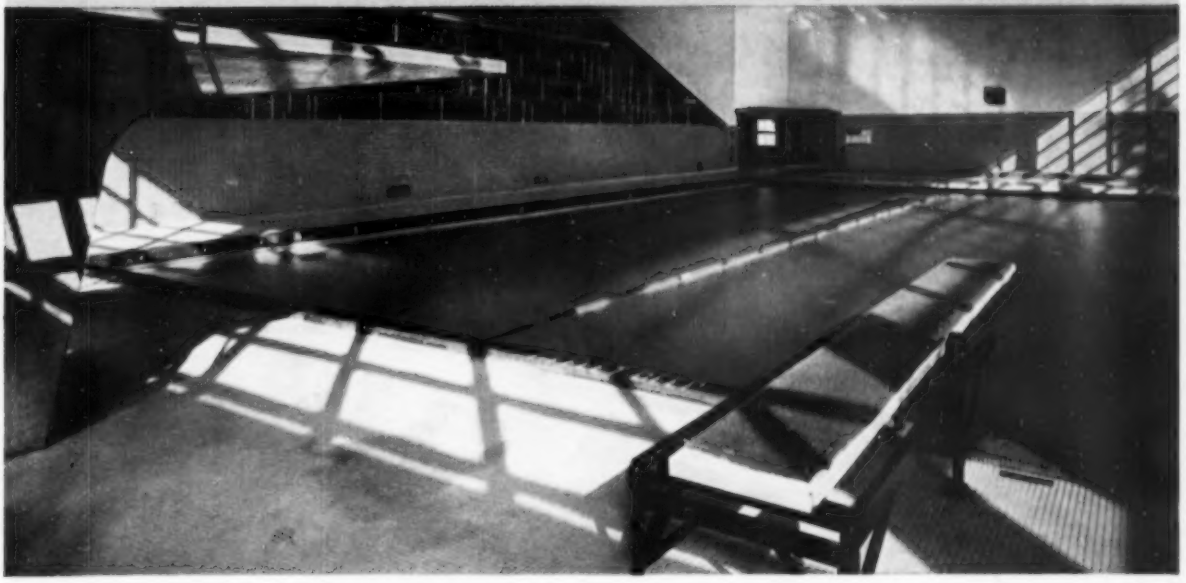

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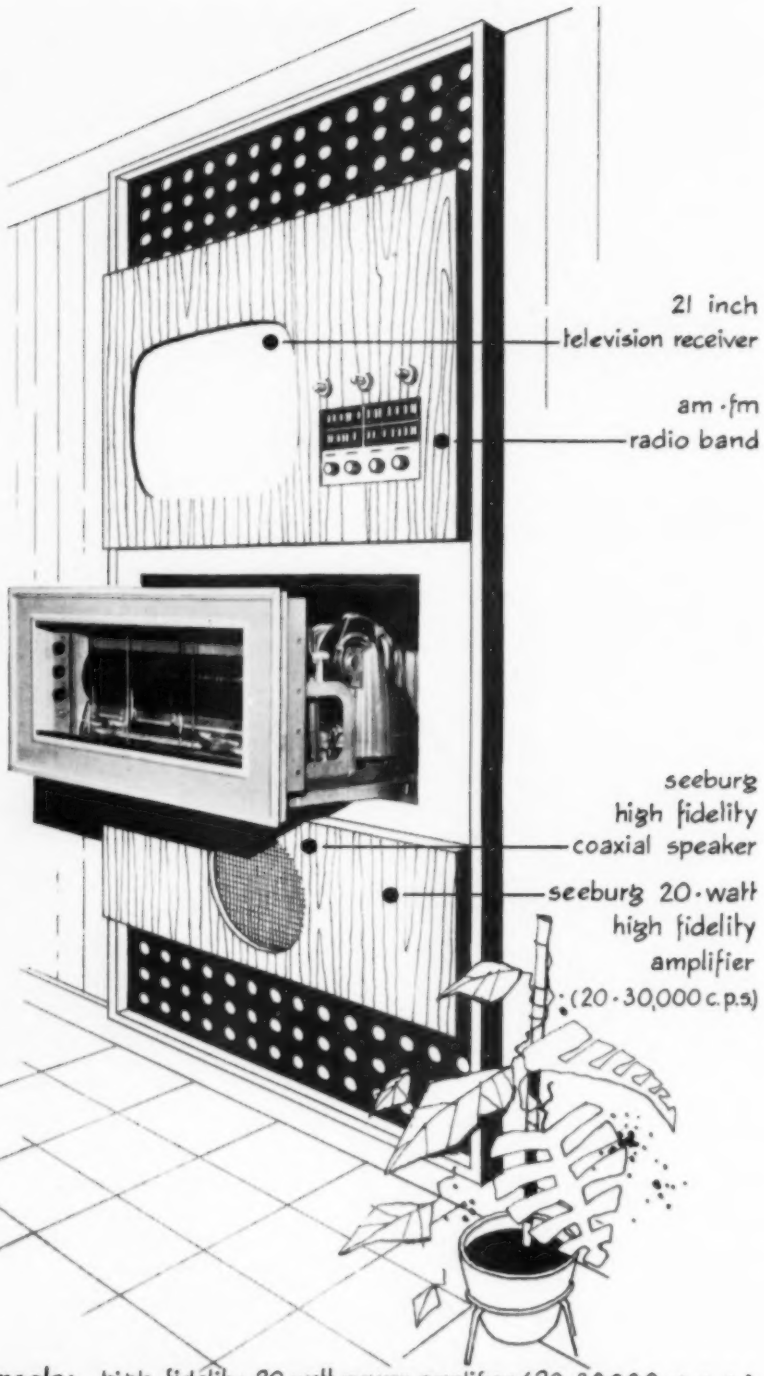

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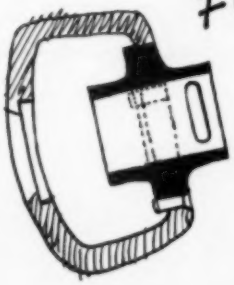

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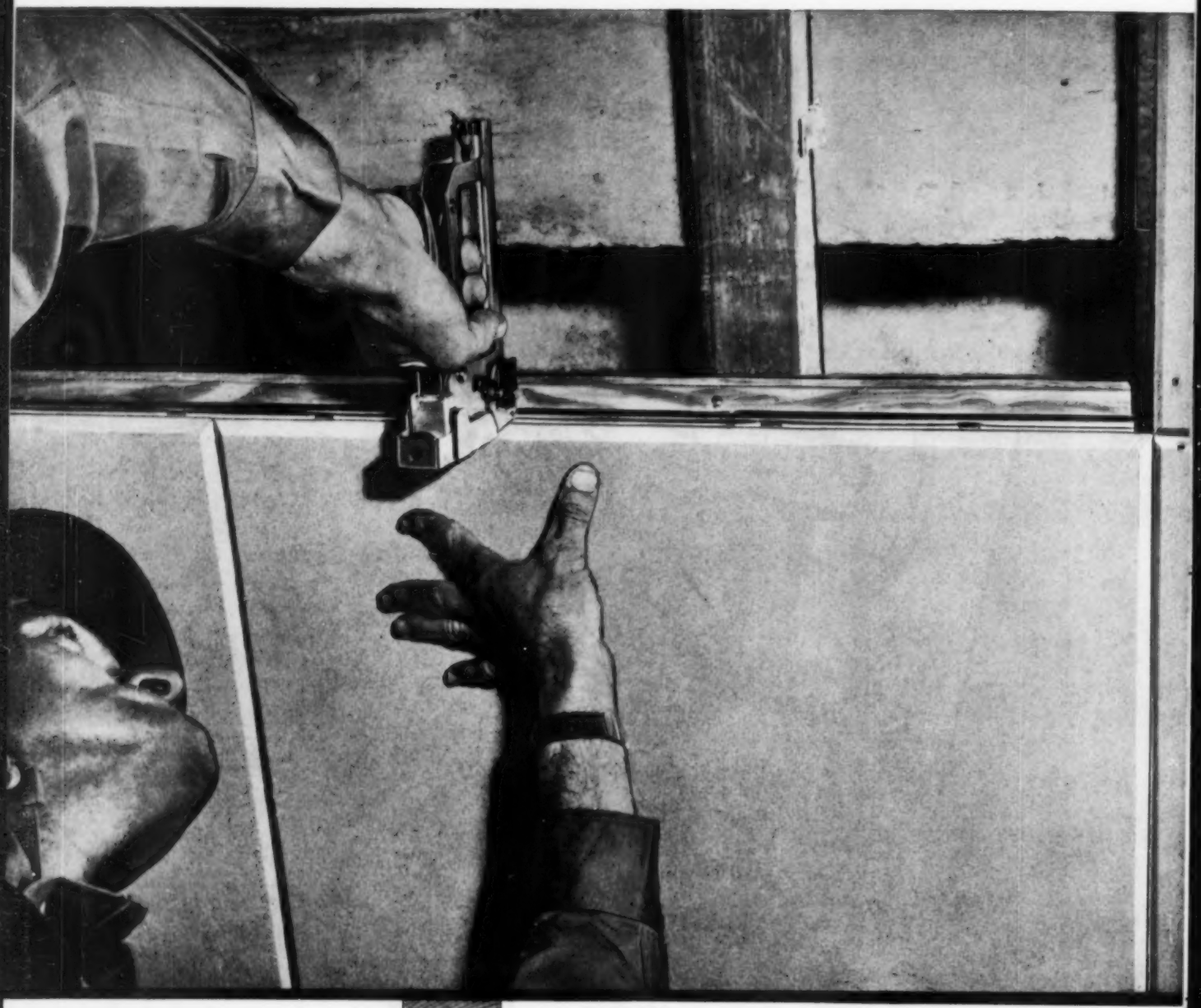

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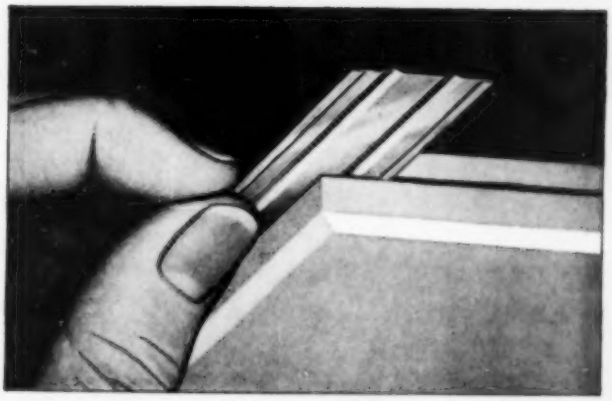
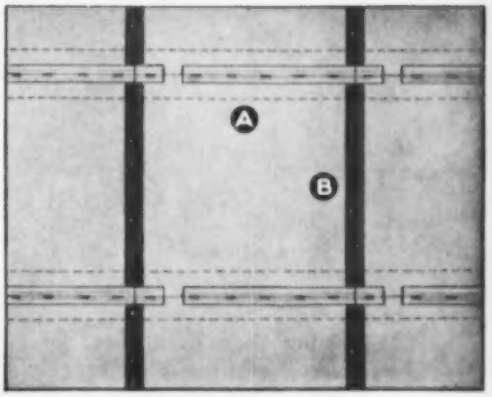


❶ Aluminum spline is inserted in kerfed edge of Fiberglas Acoustical Tile, 24" x 24" x ¾".



❸ Supporting splines (A) are parallel to furring, and continue through tile joints. Fiber cross splines (B) are used for leveling. They are not stapled, making installation still more economical.

❷ Modified hand or air tacker with special attachment holds spline away from furring strip, drives 9/16" staples flush with face of spline, and into furring strip. Staples do not pierce tile!

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(Continued from page 188)

chapter on the need for "manifold experimentation" points out in thoughtful detail the direction that further co-ordinated studies should take.

Easiest and most interesting reading to the architect will probably be the section on the understanding of architecture through many senses in addition to the visual. (A version of these chapters was published in November 1949 P/A, under the title *The Sound and Smell of Architecture.*) But I suspect that anyone picking up the book and browsing through sections that seem most pertinent and interesting, will find himself reading all of it, eventually. It is a book that will provide food for thought and inspiration to the thoughtful designer for a long time to come.

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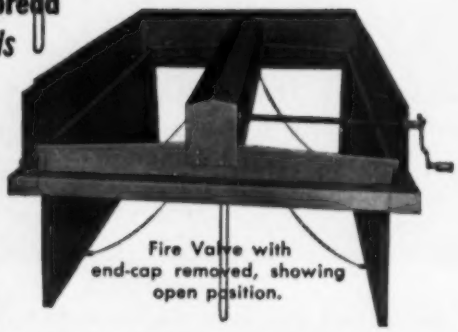

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Churches & Temples. *Paul Thiry, Richard M. Bennett and Henry L. Kamphoefner. Reinhold Publishing Corp., 330 W. 42 St., New York 36, N. Y., 1954. 71 pp., illus., $18*

In *Churches and Temples,* I believe there has emerged a reference work that may be placed in the hands of architects and the Church's clerical and lay leadership as a true guide for those who seek to express religion's spirit and function in contemporary forms. It might even be said that we can look for the conversion of many who opposed this accelerating tendency from a lack of understanding rather than from blind prejudice. The dedication, the skill, the experience, and the learning of the authors of this book will assure its place as a landmark in the annals of Architecture in the service of the Church.

As stated by the publisher on the book jacket, "The book is somewhat arbitrarily divided into four sections: Historical Preface, The Catholic Church, The Synagogue, The Protestant Church. The first section explains the *raison d'etre* for the book and provides a background for the sections that follow. The three sections on buildings for the major western religious expressions are arranged in somewhat parallel fashion. The first chapters discuss history and ritualistic and liturgical requirements involved. Intervening chapters discuss the architecture of buildings for worship—from the style, plan, and elevation to such details as altar and ark design, decoration and embellishment, bell towers, baptistries, etc. The final chapter in each of the three sections summarizes the previous chapters with large numbers of the finest examples of modern church and synagogue design and a look into the future by means of projects by architectural students. Many of our most famous architects—Frank Lloyd Wright, Eric Mendelsohn, Pietro Belluschi, Percival Goodman, Paul Thiry, Bruce Goff, Paul

(Continued on page 196)

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(Continued from page 196)

Schweikher (to name but a few)—have designed buildings for worship. All of them are represented in this book."

If there is one factor that is more impressive than any other, it is the consistent conviction that plans should follow function and function be the expression of the theological and liturgical cornerstones of the communion or sect by which the structure is commissioned. One of the most discouraging shackles that has bound contemporary church planning has been the reluctance on the part of architects and church leaders alike to break away from the traditional longitudinal plan, regardless of the Liturgical Movement's emphasis upon corporate worship. Although we have no assurance that there has evolved a plan of comparable universal acceptance, we can find in the pages of this book sincere efforts, fulfilling all the liturgical requirements, and deserving our honest study as we seek to build edifices in which man can meet God in the 20th Century.

As is only right in a study of the physical requirements of the church and synagogue, considerable space is given to the allied arts and their proper use in the buildings discussed. There is no doubt that architects will be delighted to find so careful a study and description of the "furnishings" of the church set in the midst of a survey of her rites and ceremonies. My only regret is that the sections on the synagogues and the Protestant churches are not as thoroughly delineated in this respect as are those on the Roman Catholic churches, but we can hardly blame the authors for this.

The series of illustrations by Duncan R. Stuart in the Historical Preface and the Protestant Church sections add much to the text; while in the chapter on the architecture of the Catholic Church, the plans and elevations of famous churches drawn to the same scale provide an important lesson for those who feel that "bigness" is a necessity.

There are only two adverse criticisms that this reviewer feels required to make, both of which are motivated no doubt by personal relationships, but which may have value.

In the first instance, I am in hearty agreement with the criticisms in the Protestant section of Colonial eclecticisms and pseudo-Gothic churches and cathedrals built in America. However, it must be remembered that the Gothic revival was a true contemporary architectural expression even though an unhealthy one. City halls, railroad stations, domestic dwellings, and even outhouses can be found in neo-Gothic, employing wood, stone, and cast iron. As it is pointed out, to continue this trend after the (19th Century) contemporary architects began to be more creative, is all the more to be regretted, particularly in the cases of such outstanding structures as Riverside Church, the Washington Cathedral, and the Cathedral of St. John the Divine. However, is it not fair to distinguish be-

(Continued on page 198)

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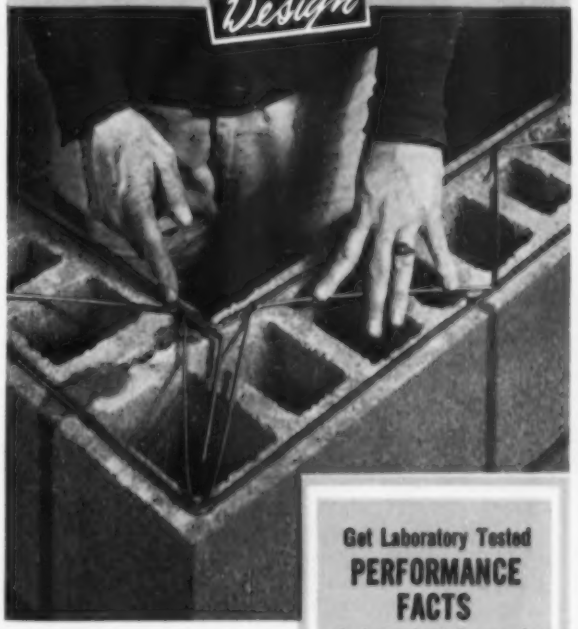

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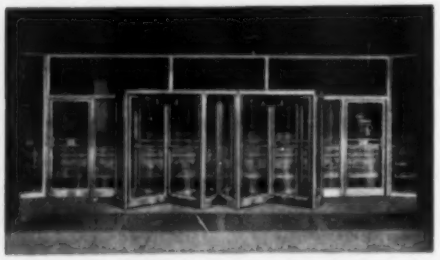

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reviews

(Continued from page 196)

tween Gothic construction as we find it in the two cathedrals and the complete improbability demonstrated by Riverside Church, which like so many universities and commercial buildings, is a steel structure with curtain walls and fake arches doomed to collapse if engineered as it appears.

Second, this reviewer feels that it should be pointed out that the Bureau which furnishes advice to church architects, and which is severely criticized in the book, has undergone a considerable change in outlook in the last year or so. Under its former director all that Dean Kamphoefner charges was true, but today the contemporary style is recognized and is no longer held up to unjustified ridicule and prejudiced attack. This reviewer's presence on the Bureau's Board of Directors may explain his protective attitude, but also should give evidence of a change of heart in the Bureau's thinking. Let us rejoice together that so useful an instrument in church building has been won over to a recognition of the rightful place of contemporary architecture in the service of the church.

Having made these two criticisms let it be repeated that this book is a *must* for the reference shelf of every architect who hopes to build a church, for the libraries of every theological seminary, every architectural school, and every clergyman who is involved in a building program or is a student of the subject. We are grateful that this book has appeared.

The Rev. DARBY WOOD BETTS *

** Canon Precentor of the Cathedral of St. John the Divine; Member of the General Convention's Commission on Architecture and the Allied Arts of the Protestant Episcopal Church; Member of the Architectural Commission and Bureau of Church Building of the National Council of Churches.*

slower is easier

Renewing Our Cities. *Miles L. Colean. The Twentieth Century Fund, 330 W. 42 St., New York 36, N. Y., 1953. 191 pp., illus., $2.50*

To add to the growing list of books on the problem of urban redevelopment,

(Continued on page 203)

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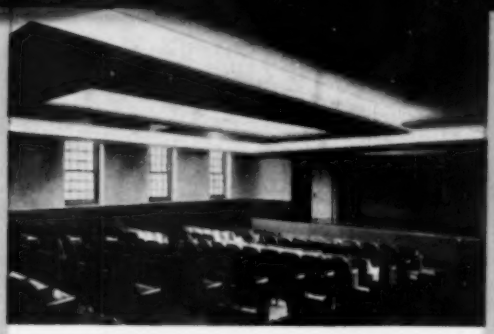

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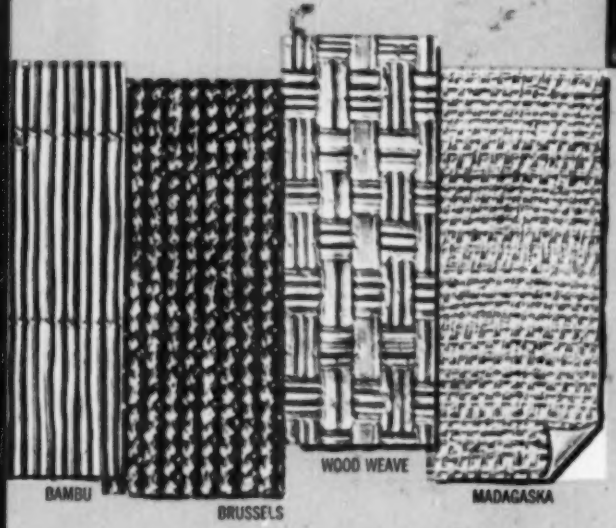

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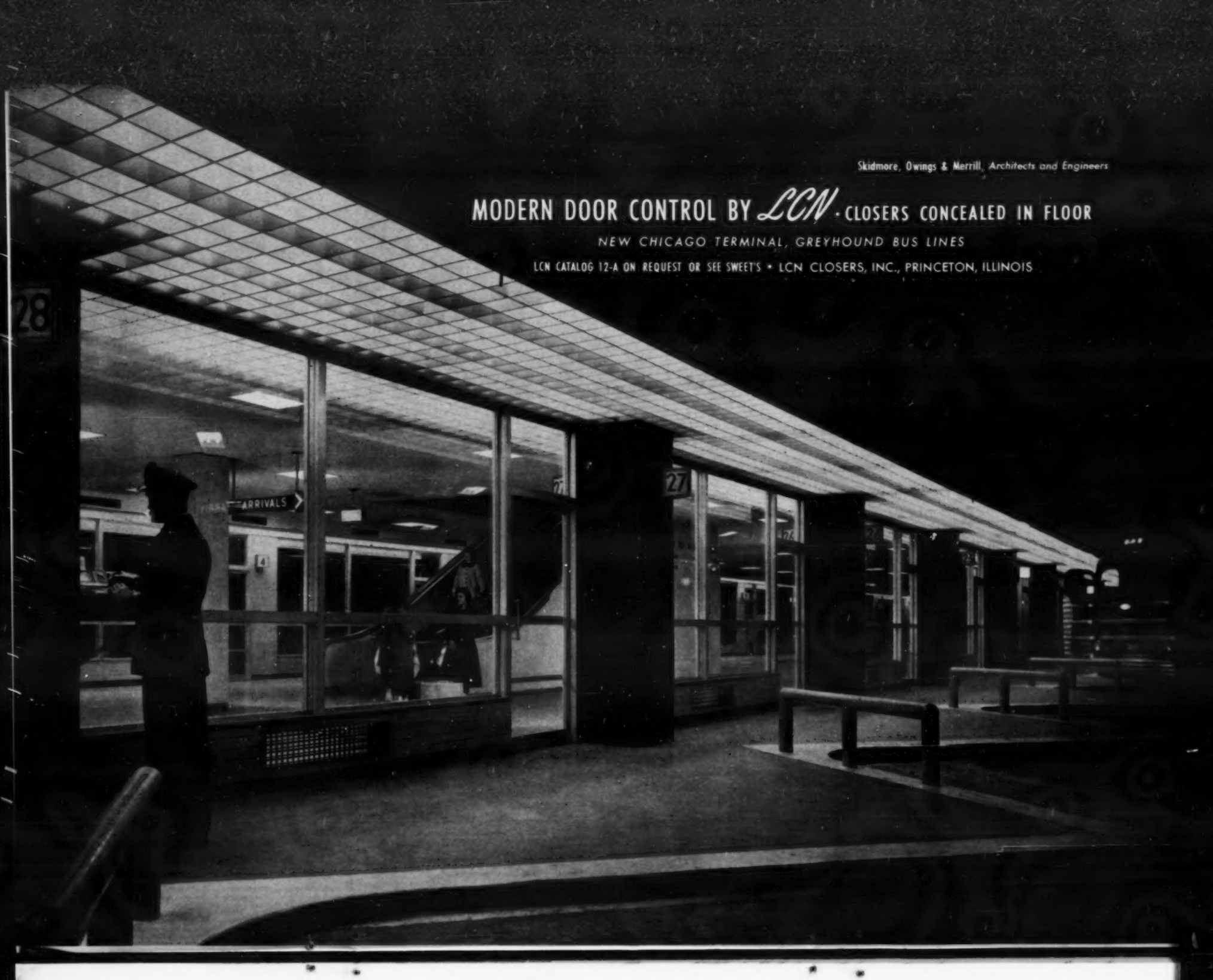

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reviews

(Continued from page 198)

Miles L. Colean has written a brief but thorough survey of nearly all the ramifications of city improvement. He points out the fact that wholesale demolition and reconstruction, while working in a few places like Baltimore, is not always the best antidote to a city's disintegration. Colean suggests that more often a program of gradual improvement over a wider area, while not as dramatic, is less explosive and controversial, and thus more likely to receive wide co-operation in the community. Slow as the latter process may seem, the author finds it to be effective enough to predict, or rather to be optimistic about, a brighter future for our cities. J.K.

the general hospital

Design and Construction of the General Hospital. *U. S. Public Health Service. F. W. Dodge Corp., in collaboration with* Modern Hospital *magazine, 119 W. 40 St., New York 18, N. Y., 1953. 214 pp., illus., $12*

The graphic material contained in this book had been published in the architectural press as well as in the hospital press. This material has been and, so far as we know, is still available from the USPHS in Washington. The printed matter also has been published at least in the hospital magazines and has been and is now available by writing for it to the government in Washington.

These facts, nevertheless, need not detract an iota from the value of the book. It will be news to those who had not seen the material before and to those who had, the same material will be easier to handle within covers rather than as a series of pamphlets and reprints.

The book addresses itself strictly to the general hospital and even so, only to general hospitals up to 200-beds in capacity. It does deal with provisions for the care of the tuberculous, the emotionally sick, and the contagious, but

(Continued on page 206)

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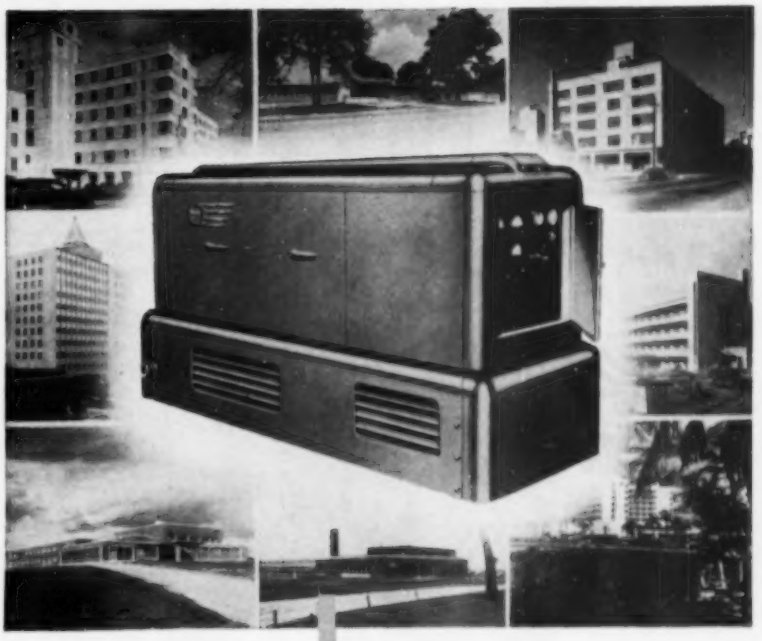

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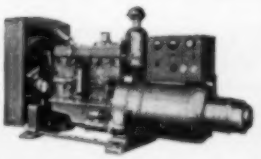

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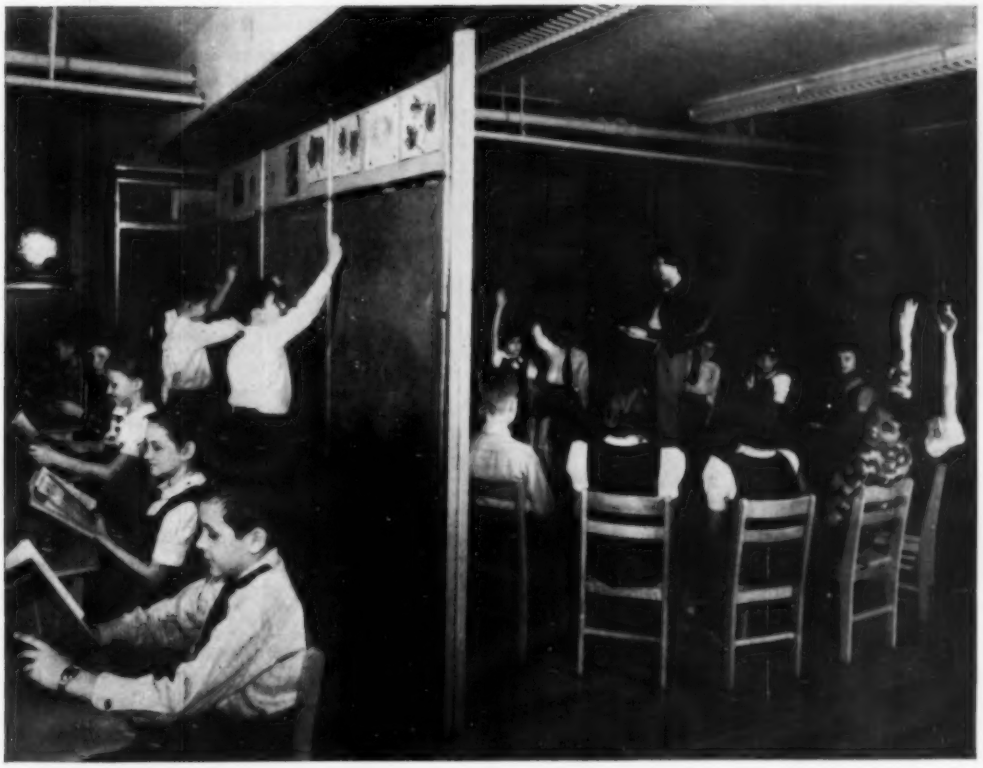

● An R-W 40-Decibel Folding Partition installation in partially closed position. Note 3-inch thickness and absence of floor track, or guides. Partitions available with cork tack boards, chalk boards and chalk troughs.

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reviews

(Continued from page 203)

only as integral parts of the general hospital up to 200 beds.

The first part of the book presents prototypes of general hospitals of 8, 10, 25, 30, 40, 50, 75, 100, 150, and 200 beds. It also presents a prototype "school of nursing and residence" but again for the relatively small hospital. The second part, entitled "Design and Construction," is a discourse on the workings and organization of the several departments in the general hospital. Under the same heading are described and discussed the various mechanical, electrical, and structural systems; materials and finishes, fire safety, cost, programming, and the planning process. The third part of the book is occupied by the familiar "Elements of the General Hospitals." The last part deals with the planning of the equipment for a general hospital and it includes actual lists of equipment and supplies for general hospitals of 50, 100, and 200 beds.

What are its limitations? It is implicit that the book deals with the general hospital only and at that only up to 200 beds. However, such hospitals comprise over two thirds of our general hospitals and for that reason alone are very important. Like other good books on hospital planning it is a boom to the U.S. and the world at large. Even the most experienced hospital architects make frequent use of the material which is in this book; certainly, his staff does, which amounts to the same thing.

Another criticism which is frequently leveled against the material of this book by architects, particularly against the "Elements," is that having the authority of Uncle Sam behind them, they tend to be treated as inflexible standards thus stifling the imagination. The answer to this is that in the hands of the initiate and the imaginative these standards are what all standards ought to be: points of departure. In the hands of the novice and the unimaginative they are preventatives against committing worse crimes than copying good examples. I, for one,

(Continued on page 210)

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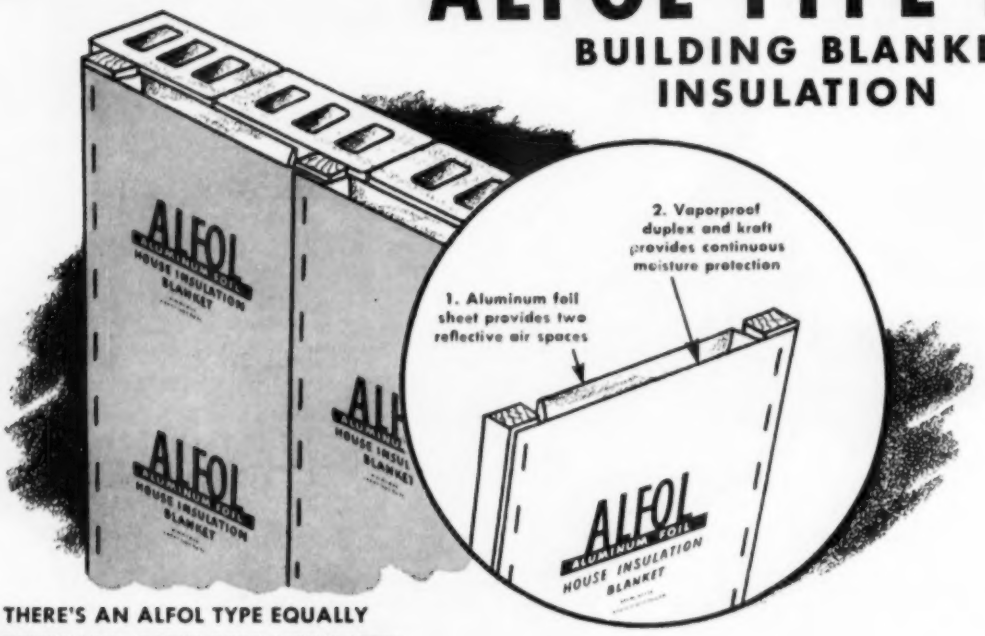
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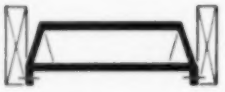

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reviews

(Continued from page 206)

hold that some knowledge is better than none.

There is not a better reference book on the general hospital up to 200 beds and it should continue to be so as long as it is periodically edited to keep it up to date, as hospital administration and, consequently, planning are currently in a very fluid state.

It would be, in a sense, redundant for me to shower well-deserved praise on this book, because if its material had not been so praiseworthy, I would not have included so much of it in my own book on hospital planning.

Much praise is due for the material in this book to Marshall Shaffer, his staff, and his medical collaborators.

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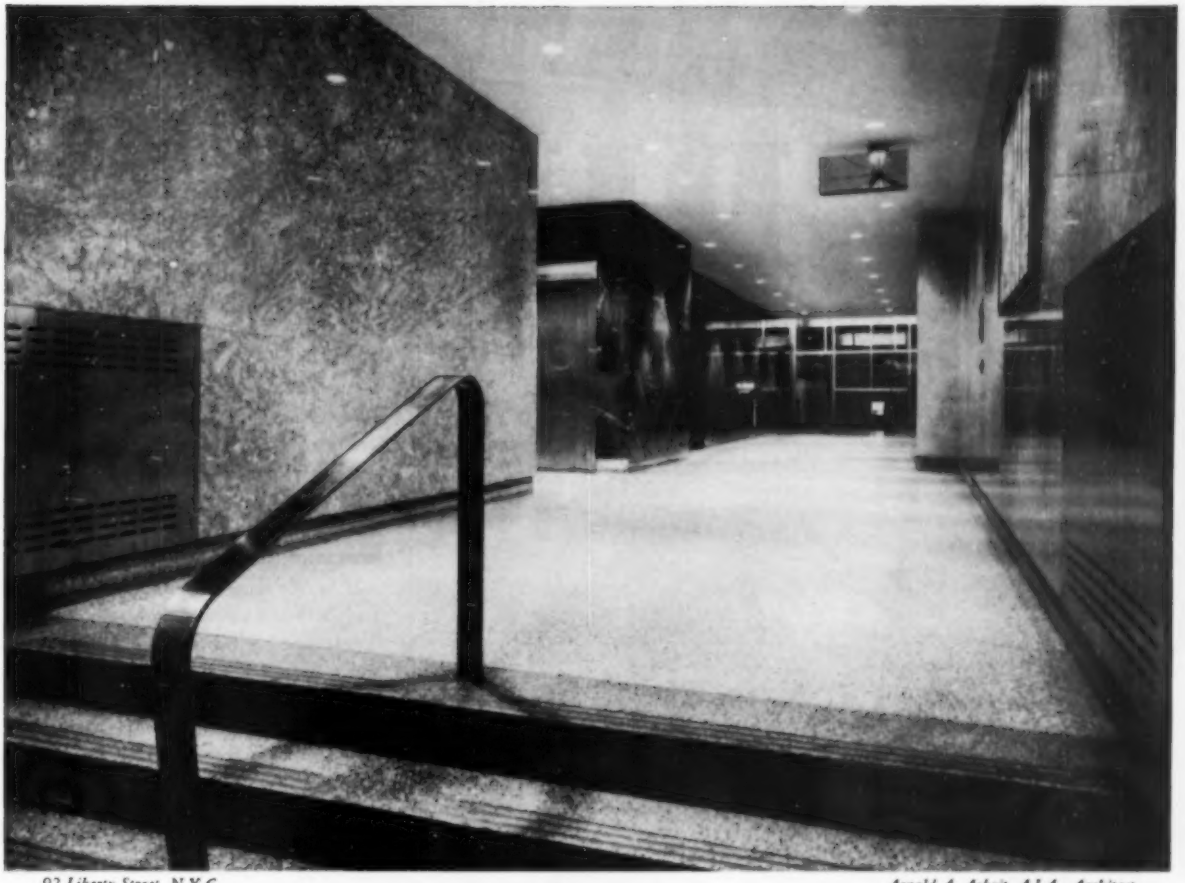
Motels, Hotels, Restaurants and Bars. *Architectural Record* Staff. *Architectural Record, F. W. Dodge Corp., 119 W. 40 St., New York 18, N. Y., 1953. 216 pp. illus., $6.95*

An organization or individual contemplating the construction of, or the remodeling of a motel, hotel, bar, or restaurant, as well as any architect or interior designer entrusted with such an undertaking, would do well to examine this volume.

Although the text and the illustrations have been published over a period of years in *Architectural Record,* in making this book available for the general public and members of the design profession, the editors hope it will achieve these objectives: "First, that owners of motels, hotels, restaurants, and bars who read these pages will be persuaded that a high level of design pays. Second, that prospective investors in such projects will realize the (business) wisdom of engaging professional architectural talent early in the game and, finally, that architects will find this book a handy guide to contemporary examples of considerable merit." Those aims are eminently fulfilled.

(Continued on page 212)



92 Liberty Street, N.Y.C. *Arnold A. Arbeit, A.I.A., Architect*

marble gave this owner a $60,000 bonus!

Have you ever heard of getting $100,000 worth of remodeling for $40,000? Owner Aaron Levin says this was accomplished in his 21 story, 92 Liberty Street, New York, office building — *and he did it through the use of Marble**.

Here's what he says: "The competition of new construction was getting tough for our 50 year old building, so I decided to meet the competition on its own level. Our architect, Arnold A. Arbeit, A.I.A. used the most beautiful materials he could find, yet gave us one of the soundest investments we've ever made. Marble made the difference — and a whopping big difference it was." Here is the cost breakdown:

Demolition	$ 700	Doors	$ 1,200
Misc. metal	1,000	MARBLE	17,500
Terrazzo	1,750	Clock	500
Electric	2,100	Mailbox	750
Radiators	100	Stainless steel	4,000
Directory & misc.	4,000	Architect's fee	3,600
Lath & plaster	3,000	**Total**	**$40,200**

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* *As told in the Magazine of Building, Nov., 1953, Page 118*

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reviews

(Continued from page 210)

Each of the case studies is profusely illustrated with interior and exterior photographs and many detailed floor plans and structural diagrams. Thus, anyone interested in this particular type of building will find the book a worth-while source of sound and useful ideas, depicting the talents—to say nothing of the services—of the country's leading architects and designers. There is the most comprehensive sort of coverage, ranging, for example, from a small snack bar at La Guardia Airport, New York, to the enormous Statler Center in Los Angeles, with its multiple facilities for the public.

It hardly needs to be said that only architects and interior designers have the expert training, the technical background, and the artistic imagination required to make such public buildings satisfying to both the management and the clientele that frequents them. And it is likewise axiomatic that for a business structure efficient, well-planned design in the best of taste will pay off in increased profits. One need only analyze the more than 500 illustrations to see, graphically, how the relationship between good design and good business can be achieved. On this point alone, if for no other reason, the book is especially valuable. There is an ever-increasing volume of travel and also an increasing volume of building, but at present the need for the kind of buildings under discussion here, to accommodate the public, is far from adequately met. This volume pleads the case for competent design in a telling manner.

FRANK A. WRENSCH

book as teacher

Oil Painting. Methods and Demonstrations. *Henry Gasser. Reinhold Publishing Corp., 330 W. 42 St., New York 36, N.Y., 1953. 128 pp., illus., $10*

Gasser's book on oil painting represents, in my opinion, an outstanding value as an aid and guide to the art student or amateur painter who is striving to solve a complex problem of landscape painting outdoors, as well as in the studio.

(Continued on page 214)

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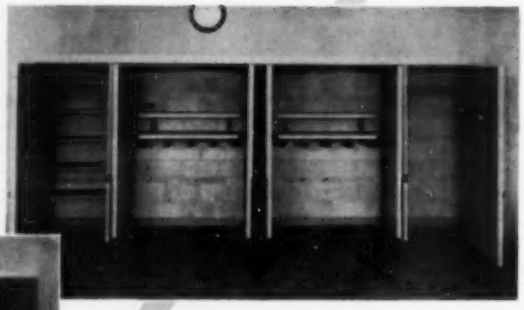
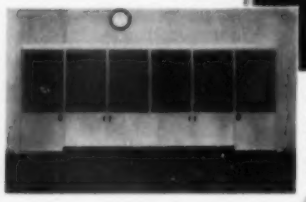
School Installations Shown are The West Side School, Atlantic City, N. J. Howard A. Stout, Architect





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reviews

(Continued from page 212)

Many artists and art teachers object to the student's attempt at learning how to paint from books as a substitute for the person-to-person exchange and give-and-take between the teacher and the student. Even though I generally profess this opinion, I feel this book, as a guide, comes particularly close to representing such a substitute, in the best sense. It serves as a thoroughly well-planned, highly organized course on painting the landscape in oils.

The amazing accumulation of technical advice and the invaluable shortcuts or tricks all incorporate the crystallization of a long period of sincere searching and struggle by a highly specialized artist and teacher. I feel not only the students, but art teachers, too, will welcome Gasser's abundant advice and his generous passing on of "studio secrets" and personal painting experiences.

Especially interesting, I think, is the chapter on "Working Methods from Field Notes." The advice given in this chapter will be of considerable value to the student and amateur painter, as well, who so often become bewildered and finally completely discouraged, when facing the multiple problems of painting outdoors. Gasser's "voice of experience" is heard after many years of painting outdoors, when he often composed the same motive over and over again, rearranging the various compositions as for spring, summer, fall, and winter in the changing light of morning, noon, dusk, and eve.

His advice, coupled with ingeniously chosen illustrations, demonstrates all the different steps used in solving the problem technically. This will instruct the student how to equip and prepare himself in order to cope with and capture the ever-changing moods of his model, Mother Nature, herself. While I feel that his chapter on color and light could have been handled in a more basic and also more scientific way, especially as this book should be of such an immense help to the beginner, I admire the thoroughly practical down-to-earth approach to color in outdoor painting. In addition to all this

(Continued on page 216)

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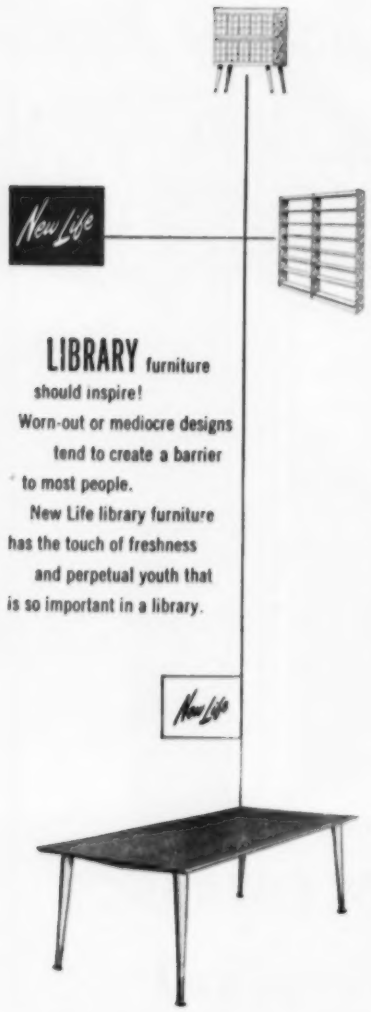

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reviews

(Continued from page 214)

there is last, but by no means least, an amazing wealth of experience, covering the technical possibilities of the ever so many roads that lead to ROME.

Gasser has used an inspired and at the same time direct approach to the basic technical developments of an oil painting, from sketch to finish. The large collection of demonstration plates reproduced in color and black-and-white will be of real value to students. I fully agree with his remarks in the introduction to this book: "Actual demonstrations are the most direct way to clarify the manifold confusions in a student's mind concerning that complex medium, oil painting, whose possibilities — once you know its basic laws — are almost unlimited."

HEIDI LENSSEN

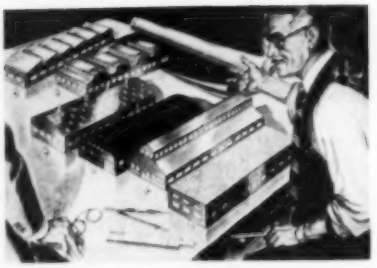
attractive and instructive

What is Modern Interior Design? *Edgar Kaufmann, Jr. The Modern Museum of Art, New York. Available from Simon & Schuster, 630 Fifth Ave., New York, N.Y., 1953. 32 pp., illus., $1.25*

Intended as a companion and a supplement to the author's booklet issued earlier by The Museum of Modern Art, *What is Modern Design?* this work emanates from a small exhibition held at the Museum seven years ago, an exhibition of modern rooms of the last 50 years. The author's aim is twofold: to show the art of arranging furniture and decorative accessories for agreeable and civilized living, as this art developed in the first century of modern design (1850 to 1950) and to point out from this period a few dominant traits which are markedly evident in the good interiors of today.

As director of the Museum's *Good Design* exhibition of home furnishings, Edgar Kaufmann, Jr., is well versed in his field. In his earlier publication, he stated that "modern interior design is planning and making rooms suited to our way of life, our abilities, our ideals. It began a century ago when creative, per-

(Continued on page 218)



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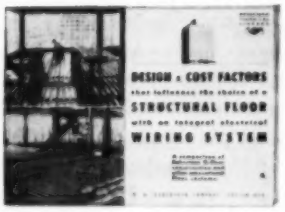
How to fireproof Robertson Q-Floor and Structural Steel

This booklet is an exposition of fireproofing methods employed when Q-Floor is used in conjunction with structural steel framing in a multi-story building and must meet local building code requirements. It covers most problems likely to be encountered by the designer and contains charts of typical code requirements, fire resistance ratings, and framing and ceiling details, both basic and with all combinations of extras.

Design and cost factors



With the use of this book you will find you can readily compute the cost of all types of structural floors with integral electrical wiring systems and compare them with Q-Floor. The study is based upon a typical multi-story building and is replete with charts and cost studies of all components to enable you to accurately estimate for your own vicinity. A critical analysis of this nature should be included in every architectural and engineering library.

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This is the first of a series of booklets giving recommended practices for sub-contractors working on Robertson Q-Floor jobs. It contains detailed specifications for formulation, placement and curing of the fill, together with well-documented treatises on the nature and reactions of concrete. You will find a section on shrinkage cracking and how to control it, well illustrated with authoritative graphs and charts.

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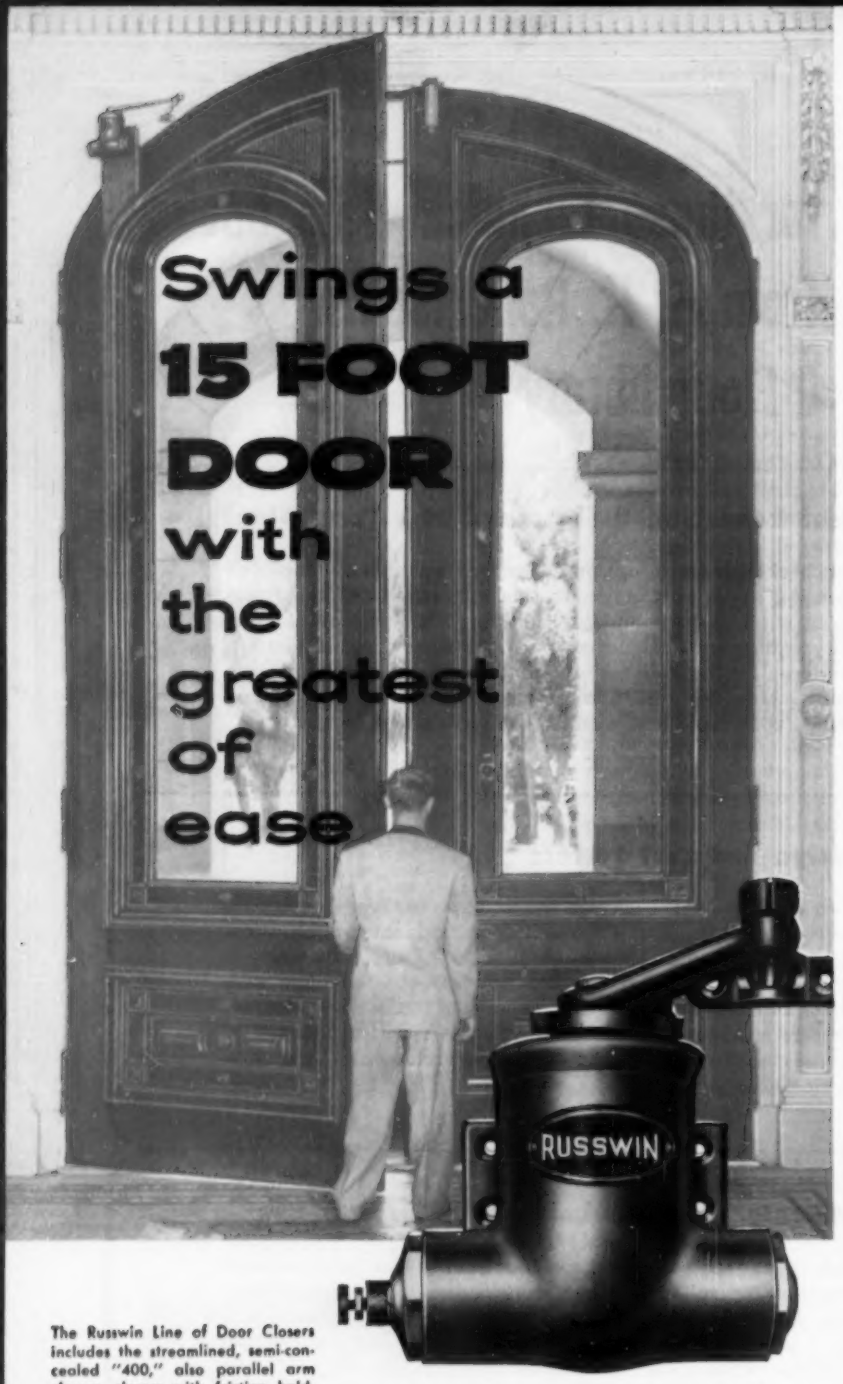

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reviews

(Continued from page 216)

ceptive people reacted to vast problems posed by technological change, especially mass production." Kaufmann realizes that in the steady development since the "movement" started, modern interior design has assumed a variety of outward forms. In this present and particularly rewarding analysis of it, he describes four dominant characteristics found in present-day interiors—comfort, quality, lightness, and harmony. The rooms he has chosen—most of them by the leading interior designers of the time—are typical and revealing. Each emphasizes each special trait in a highly informative manner. Quite understandably, most of the examples selected show living rooms, since that is the key interior in any home and the principles of design applied there are reflected in the other rooms.

Although this concise study is intended to deepen one's appreciation of modern interior design, rather than to instruct one in the practice of it, Kaufmann's selection of photographs, the authoritativeness of his viewpoints and observations, as well as the fine descriptive captions, cannot fail to be highly instructive for anyone engaged in interior design.

There are brief but telling chapters showing how the industrial revolution and the continuing interest in nature are influencing the development of modern design; while a portion of the booklet is devoted to regional expressions in the United States, where the dominant traits of comfort, quality, lightness, and harmony are again noted in different climates and environments. For those who wish to investigate more thoroughly and from other viewpoints the problems and tendencies of modern design raised here, Kaufmann has provided a well-rounded reading list. FRANK A. WRENSCH

biography in brief

Sir Christopher Wren. *John Summerson. The Macmillan Company, 60 Fifth Ave., New York 11, N. Y., 1953.* Brief Lives *Series. 160 pp., illus., $1.75*

Ninth in Macmillan's series of *Brief Lives*

of famous men and women who have in some way contributed to the growth of Western Civilization, this little biographical study of Wren and his architecture is exactly what it purports to be—brief. One would expect a condensed biography of a man like Wren, about whom so much has been written, discussed, researched, and known, to be at least lively, since it cannot be comprehensive. Unfortunately, this book fails to take advantage of its necessary foreshortening and falls exceedingly flat. Just to recount the historically documented facts and probabilities of Wren's career is hardly an excuse for another book, even at this low price. Its only justification, then, results from its position in the *Brief Lives* series; hence, it is of little value to architects, who should already know as much about Wren as this book reveals. J.K.

valuable "refresher"

Simplified Problems in Strength of Materials and Structural Design. *Ephraim Viertels. Edward W. Sweetman, One Broadway, New York, N. Y., 1953. 636 pp., illus., $10*

This book by Viertels is intended to provide a comprehensive review and a refresher for elementary structural design, strength of materials, and mechanics. It is not a text but could well be used for self-study. It is a problem book which is arranged in question and answer form. Each chapter is followed by numerous test questions with their answers. Most of the subjects required for the structural parts of the State Board Examinations in Architecture and Engineering are covered.

Unfortunately, the phraseology is awkward at some points in the book and many of the problems could have been simplified by use of foot-kip instead of inch-pound units. The design of structural steel members is not based on the latest AISC specifications. A number of tables are provided in an appendix, but most users will prefer to use tables provided in the more standard handbooks.

(Continued on page 220)

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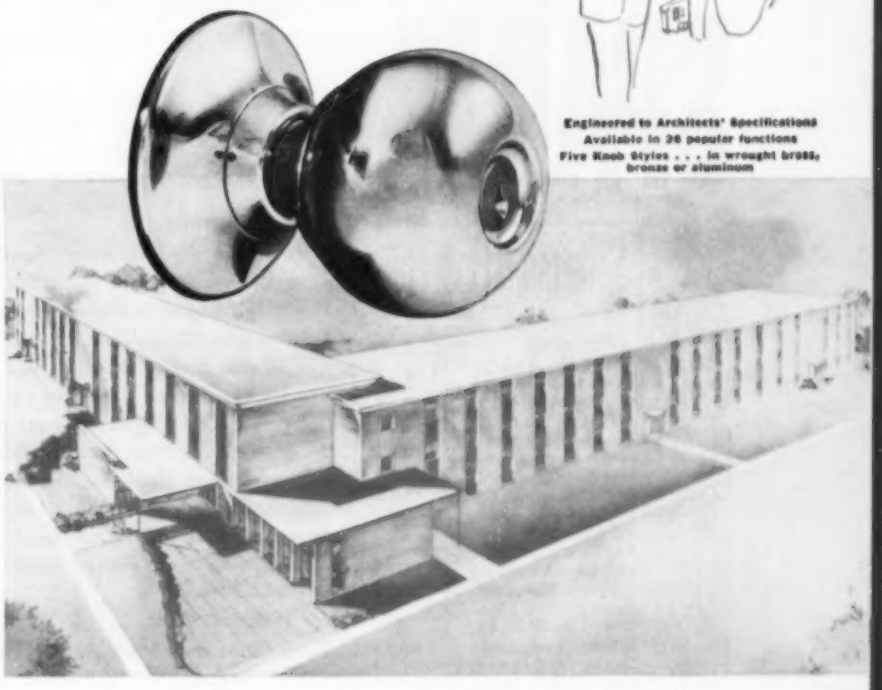

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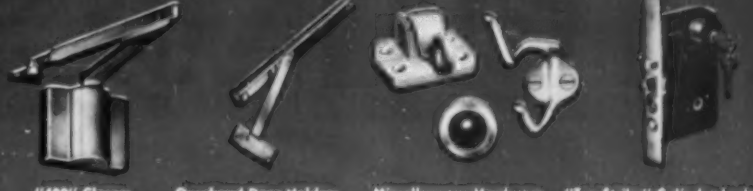

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reviews

(Continued from page 219)

The book is logically arranged and quite well indexed. It will have definite value to one studying for his professional examinations and for those needing simple and explicit problems to aid in clarifying the theory found in other texts.

DONALD G. RADWAY

notices

free to architects

The new quarterly, *Protestant Church Administration and Equipment*, published by The Pulpit Digest Publishing Company, 159 Northern Blvd., Great Neck, N. Y., will be sent free to architects and contractors who request it. Edited by John R. Scotford, pastor, author, and editor, the quarterly will deal with the rebuilding, renovation, and maintenance of church properties—reporting improvements noted as well as the reaction of congregations to the changes made.

exhibition

THIRD ANNUAL BOSTON ARCHITECTURAL CENTER EXHIBITION—April 22-30. HUGH STUBBINS and CARL KOCH, Architecture and Design. Sponsored by the Atelier of the Boston Architectural Center.

honors, awards

JUNE WOOD WICKER, Architect, Georgia Chapter, AIA has been named "American Businesswoman of the Year" by the American Business Women's Association.

Top honor award in TEXAS ARCHITECTURE—1953 went to MILTON A. RYAN of San Antonio for his design of the First Christ Church of Christ Scientist at Victoria. Annual statewide competition was held by Dallas Chapter of AIA.

Hugh Ferriss, President, New York Chapter, AIA, announces award of the 1954 ARNOLD W. BRUNNER SCHOLARSHIP in the amount of $2400 to RALPH E. MYERS, AIA, Kansas City, Mo. Myers will edit a series of 30 minute lectures in the form of colored slides with tape-recorded com-

(Continued on page 222)

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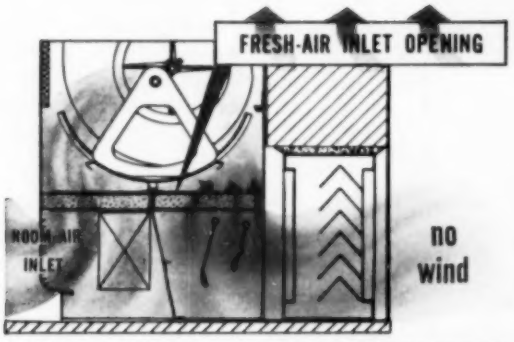
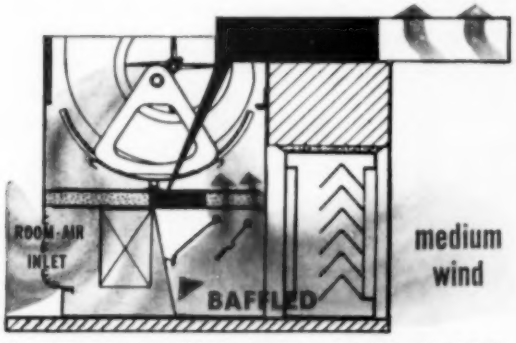
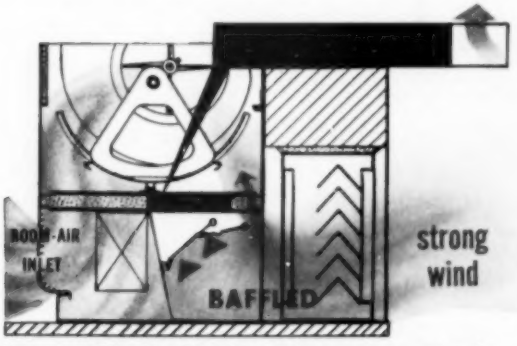


Air Volume Stabilizer vanes hang free; full intake opening.



Vanes start to close; intake opening reduced to about half.



Both vanes fully closed; intake opening now one-quarter size.

ALL unit ventilators have a fresh-air inlet opening of a certain size designed to permit a percentage of outdoor air to be drawn into the unit and mixed by the fans with air drawn from the room.

On very windy days more outdoor air than is desired may be blown into the unit, resulting in a waste of the fuel required to heat it. With high winds, the outdoor air volume may tax the capacity of the fans . . . some cold air may "blow through" the room-air inlet and cause discomforting drafts.

The Nesbitt Air Volume Stabilizer solves this problem. Two aluminum vanes, suspended by end pivots below the fresh-air inlet, are operated by the very force of the incoming air to reduce the size of the aperture as required. The desired outdoor air volume is maintained. No fuel is wasted. Blow-through is prevented without affecting the economical recirculation of room air. (See diagrams.)

No other unit ventilator relates the area of the fresh-air inlet to increasing wind velocity . . . no other unit is equipped to achieve this economy.

NESBITT *Syncretizer*

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You Judge the Superiority of

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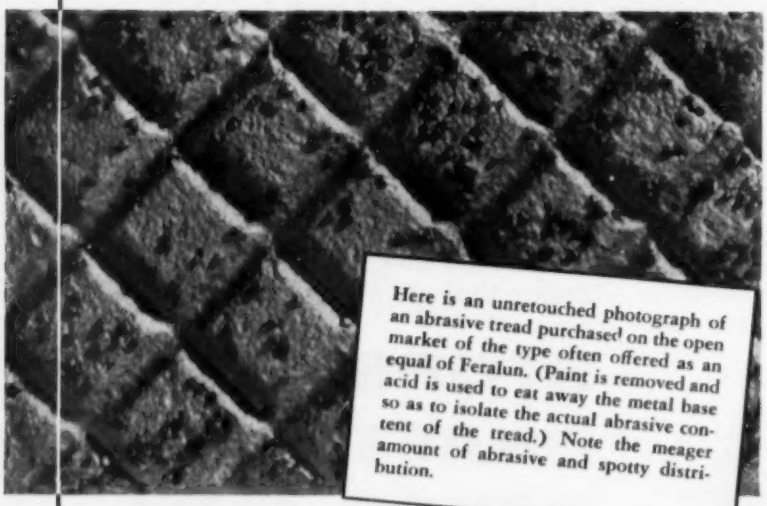
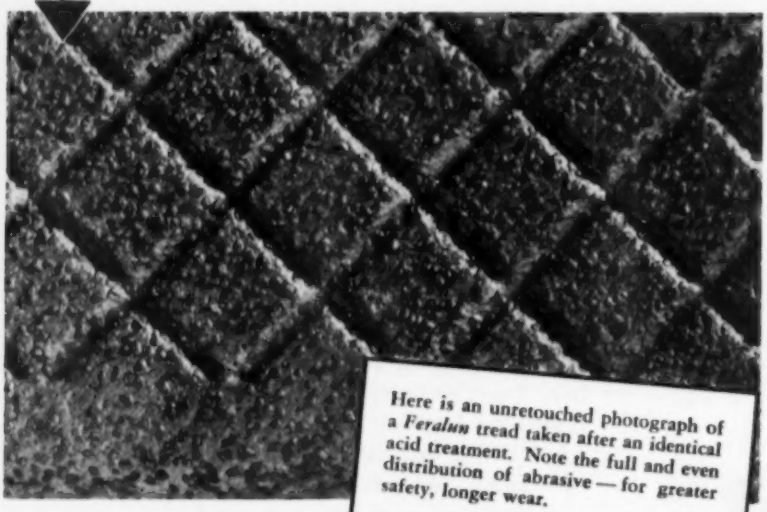


Here is an unretouched photograph of an abrasive tread purchased on the open market of the type often offered as an equal of Feralun. (Paint is removed and acid is used to eat away the metal base so as to isolate the actual abrasive content of the tread.) Note the meager amount of abrasive and spotty distribution.



Here is an unretouched photograph of a *Feralun* tread taken after an identical acid treatment. Note the full and even distribution of abrasive — for greater safety, longer wear.

The life and non-slip effectiveness of any abrasive tread is approximately proportional to the amount of abrasive embedded in the surface. Note that the abrasive of the Feralun tread also extends over the nosing where the danger of slipping is greatest. Feralun has provided lasting safety—free from maintenance—for the past 35 years.

Feralun is available as treads, thresholds, floor plates and elevator sills. Also in Bronzalun, Alumalun and Nicalun. *See Sweet's Catalog 1954 —12b/Am.*

AB117

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notices

(Continued from page 220)

mentary, entitled, ARCHITECTURE—U.S.A. Each lecture will deal with one of the many aspects of Contemporary American Architecture and the series will be freely available to AIA chapters, universities, libraries, schools, and civic groups.

P/A Congratulates . . .

PAUL F. KEATINGE has been elected Vice-President of the GENERAL PORTLAND CEMENT CO., and Director of Sales for the Trinity Division according to an announcement by Smith W. Story, President. The Trinity Division handles "Trinity White" portland cement for the General Portland Cement Co., which has mills in Dallas, Houston, Fort Worth, Chattanooga, and Tampa.

ROBERT B. HICKS, new Assistant to the President of ADAMS-RITE MANUFACTURING CO., Glendale, Calif. The company manufacturer specialized locks and trim for the builders' hardware and aviation fields.

A. C. NICKEL, new Manager Hospital Equipment Sales of MAYSTEEL PRODUCTS, INC., of Mayville, Wis., manufacturers of hospital casework with headquarters at 740 N. Plankinton Ave., Milwaukee 3, Wis.

PHILIP L. BASS, new Sales Manager, Metropolitan Lumber Division of U. S. Plywood Corporation, with headquarters at 89-17 Turnpike, Brooklyn, N.Y.

JOHN BILLIE, newly appointed New York Sales Manager for Plasteel roofing and siding products has just been announced by Dr. J. E. Rosenberg, President of Plasteel Products Corporation of Pittsburgh and Washington, Pa.

PARKER H. STOUGH, new Sales and Product Counselor for Bulldog Electric Products Co., Detroit 32, Mich.

E. E. MOORE, new Assistant to President and Vice-President of the United States Steel Corporation, Pittsburgh, Pa.

ARTHUR O. SMITH, new Western Sales Manager of Fleet of America, Inc., of Buffalo, N. Y., and Des Moines, Iowa.

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Yes, when next you specify tile flooring, consider the many advantages offered by MATICO Parquetry. Parquetry comes in four distinctive shades — walnut, mahogany, oak and maple — in 9 x 9, ⅛" sizes. Write Department 9-4 for details and specification data today!

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ultra-shallow fluorescent luminaires from MITCHELL

MITCHELL THINLINE

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New "Thinline" answers the need for high-efficiency illumination, coupled with attractive styling. Outstanding advantages include: ultra-shallow contour provides pleasing, streamlined installation; special translucent "Evenglo" plastic sides and louver give higher light transmission, yet provide tremendous hiding power and diffusion for desirable low surface brightness; superior louver design with proper 45°/45° cutoff conceals lamps from all normal viewing angles. Advance styling, unusually low maintenance factor and high lighting efficiency make the new MITCHELL "Thinline" Luminaires outstanding values in commercial fluorescent lighting.

Note the ultra-shallow contour. When flush-mounted, the luminaire presents a beautiful streamlined appearance.

Concealed combination hinge and latch on each side of luminaire permit easy removal of louver from either side.

New Rapid-Start units are available; they slash maintenance cost by eliminating expense of replacing starters.

"Evenglo" translucent extruded Polystyrene side panels provide desirable uniform low surface brightness.

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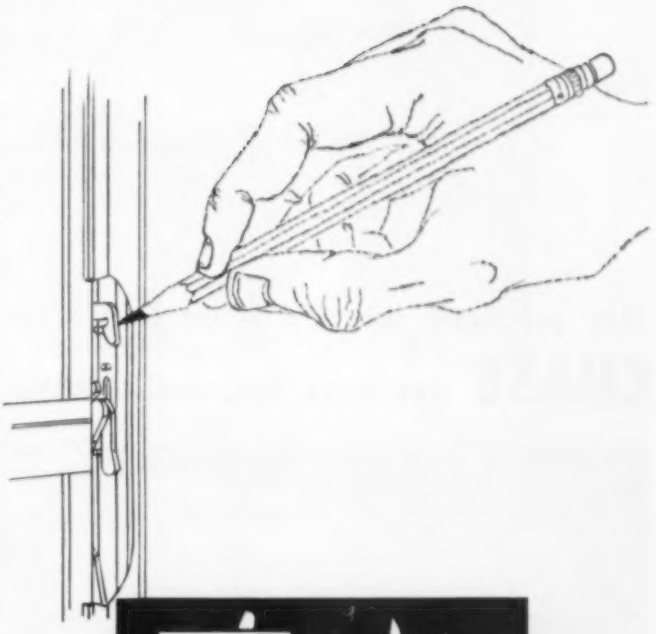
So specify Auto-Lok . . . with full assurance that you're choosing the one window which will please your client best . . . and reflect maximum credit on you. In quality, in performance, in exclusive features . . . Auto-Lok *has no equal!*



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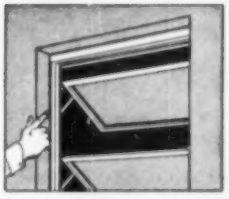

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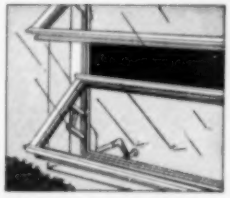

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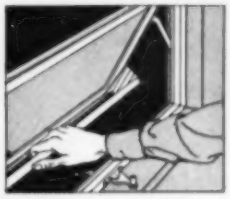

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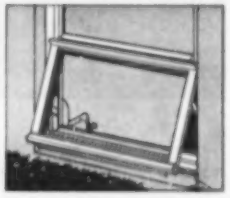

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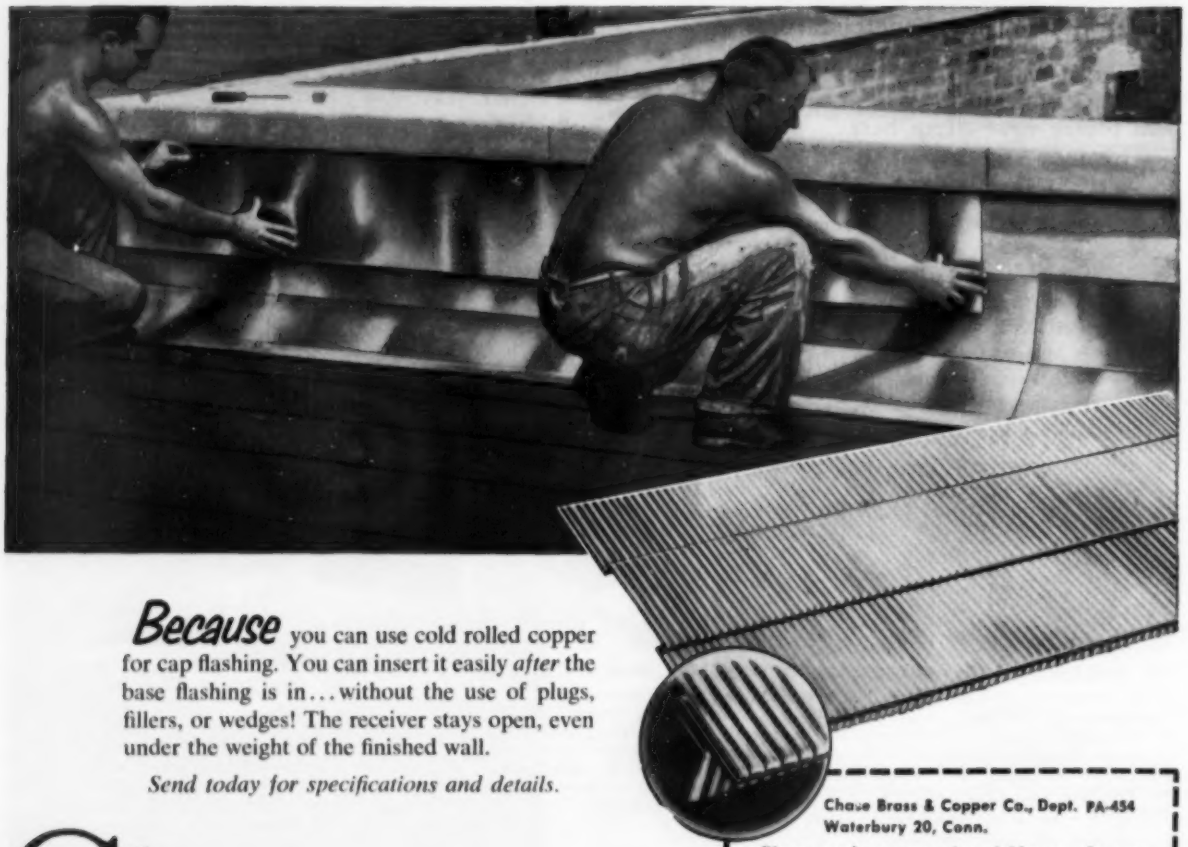

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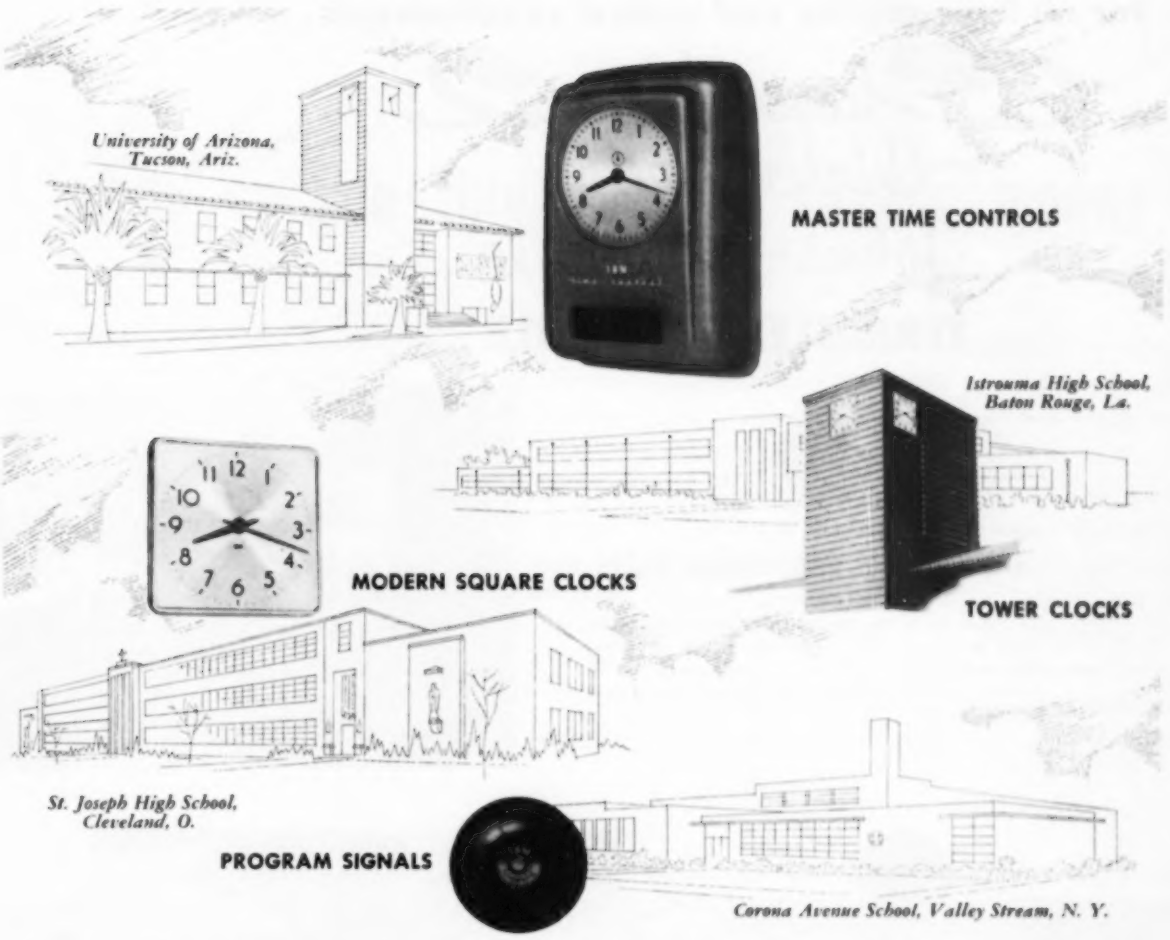
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Specify J-M Terraflex whenever your plans call for resilient flooring. Its long-wearing beauty and long-time economy provide a maximum of reliable floor service.

For complete information about J-M Terraflex, write Johns-Manville, Box 158, New York 16, N. Y.

JOHNS MANVILLE JM PRODUCTS

Johns-Manville

so you think you're saving money?

Far too often people figure lighting fixtures are all alike and buy by price tag alone. You may save a dollar or two on the price of each unit, but are you really saving money?

Today's carefully engineered lighting installations are planned with units that are designed to deliver more light at less cost. *Fewer units are required to secure the same results.* So, installation costs are less. And most important, power and maintenance costs are less during the whole life of the installation.

Take the Smithcraft DIRECTOR, for example. A recent comparison test by one of the nation's leading electric utilities clearly demonstrates that the Director produces more light and better light than ordinary fixtures.

Installed in literally thousands of banks, stores, schools and similar locations across the United States, the Smithcraft Director is in a class by itself for appearance, for quality of lighting and for soundness of investment. Be sure to get the complete story on the Smithcraft Director before relighting or when planning new installations. Ask us to send you our Smithcraft Director folder.

Photograph shows Director installation in the offices of the Credit Representative of the First National Bank of Boston, Empire State Building, New York.

BUY LIGHTING — NOT FIXTURES. INVEST IN AMERICA'S FINEST FLUORESCENT LIGHTING by
Smithcraft
LIGHTING DIVISION
CHELSEA 50, MASSACHUSETTS

Materials
Methods

MONSANTO

Remarkable screen 8 stories high shows versatility of polyester fibrous glass panels

Location	New York City
Designer	William Pahlmon
Builder	Paul Tishman, Inc.
Management Agents	Riker & Co.

An imaginative—but functional—use of polyester-fibrous glass panels recently solved the problem of screening an unsightly factory from the view of residents at 60 Sutton Place, New York.

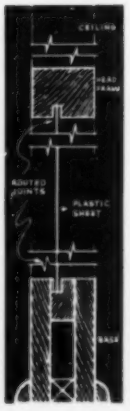
A screen—*eight stories high*—was constructed of plastic panels, bolted to a steel frame. Each tier of panels was offset to maintain a flow of air and minimize any loss of ventilation.

Use of polyester-fibrous glass panels had important design advantages. Color and translucence of material assured a handsome, attractive backdrop for apartments. High strength to weight ratio meant savings on framing and installation. The panels require a minimum of maintenance.

These advantages coupled with high dimensional stability and impact strength make polyester-fibrous glass materials worthy of investigation as a new material for construction.

Monsanto's contribution to these panels is furnishing most of the basic chemical raw materials: phthalic and maleic anhydrides, fumaric acid and styrene monomer.

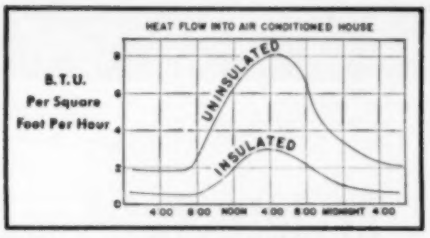
For more information on polyester-fibrous glass materials, write Organic Chemicals Division, MONSANTO CHEMICAL COMPANY, Box 478, St. Louis 1, Missouri.



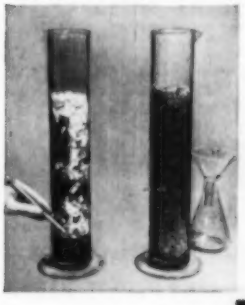
IDEAL FOR SMALL DIVIDERS in homes or offices, these polyester-fibrous glass panels are easy to install, can be nailed, bolted, screwed, or sawed.

SOLD
BECAUSE IT'S
AIR CONDITIONED

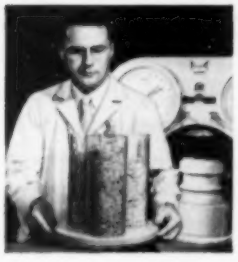
New research device, the Heat Flow Meter, proves ZONOLITE'S lasting efficiency. Zonolite insulation in homes permits 20% smaller air-conditioning units than in uninsulated homes.



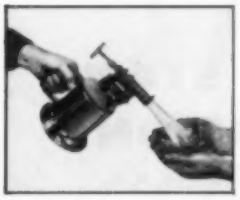
ZONOLITE cuts operating costs up to 40%. Chart shows high efficiency of Zonolite at stopping heat flow. Insulation cuts air-conditioning load 48%, states one equipment manufacturer.



ZONOLITE protects against water damage in air-conditioned homes. Standing water rots framing, causes paint failure. Scientists advise that moisture dispersed in vermiculite evaporates rapidly, causes no damage.



In a few minutes this laboratory "shaker" device simulates vibration that insulation receives in a house over a period of years. Test proves Zonolite avoids settling problem.



ZONOLITE stops fire cold! Can't possibly burn. Rot-proof, vermin-proof, permanent. Guaranteed for the life of the building.

HERE'S HOW ZONOLITE® CUTS COSTS ... IMPROVES EFFICIENCY OF *AIR CONDITIONING*

"It's air-conditioned" is the almost magical phrase that is turning new home *prospects* into eager *buyers.* Experts agree good insulation is needed for proper operation of air conditioning equipment. Now come new developments that prove that Zonolite Insulating Fill cuts air conditioning costs up to 40%, *and permits use of smaller equipment.* Zonolite Insulating Fill is the light-weight insulation that can be installed faster, easier, at lower cost.

THREE EASY INSTALLATION STEPS

STEP 1

SAVE WORK! Light-weight ZONOLITE can be easily unloaded from truck and carried into house... anyone can do it.

STEP 2

SAVE TIME! No storage problems, no special handling. ZONOLITE bags can be placed on attic joists prior to plastering.

STEP 3

SAVE LABOR COSTS! Any handyman on the job can insulate the attic during idle time in 2 to 4 hours...just pour it, level it, leave it!

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Please rush free booklet, HI-48, *"Insulation Data Book"* with complete "How to Do It" information about Zonolite Vermiculite.

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Every type of *industrial, commercial* and *residential* installation — among them some of the largest — has been made by WEL-BILT. The larger sizes have super strut reinforcements for each section—made from high carbon steel to provide utmost rigidity. These struts eliminate sagging when the door is open and, when closed, make it fit snugly. Custom-designed springs provide perfect balance. These features contribute to the remarkable operating smoothness and long life of every WEL-BILT.

Send for Photographs — Complete Data

WEL-BILT has engineered and produced over 1500 size and style combinations of overhead doors. By mailing the coupon below, you'll receive (without cost or obligation) full-scale photographs of projects that interest you. These pictures plus detailed information should provide ample evidence that our rapid progress is based on closer control, more effort, and a fully modern production set-up—and that we've succeeded in exchanging a little more value for every building dollar invested with us.

HUCK-GERHARDT CO., INC.
Luzerne & G Sts., Philadelphia 24, Pa.

Please mail (without obligation) photographs and data on WEL-BILT for an ☐ industrial, ☐ commercial, ☐ residential project. Doors will be used for

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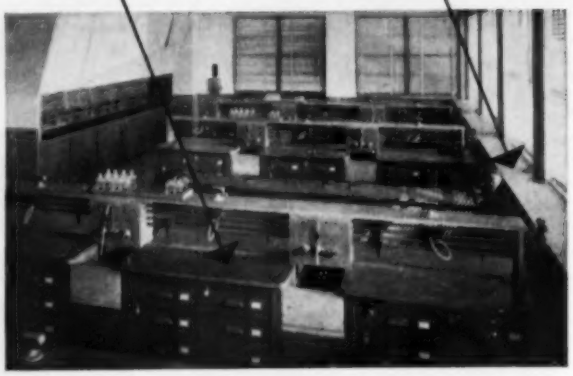
in Window Stools ★

★ and Tops...



Alberene Soapstone table tops, sinks, shelves, fume hoods and window stools, Ira Remsen Hall, Queens College, Flushing, N. Y. Hoods furred down to opening. Fellheimer & Wagner, Archts.

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In the nation's leading schools, colleges, industrial research centers, hospitals — wherever corrosion is a problem — ALBERENE STONE is the choice for window stools (also sills) and laboratory table tops, sinks, fume hoods, and shelving. Because Alberene Stone is a natural material that is highly weather- and corrosion-resistant ... durable ... and attractive. And ... because Alberene Stone is easy to handle — easy to drill and cut.

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Exterior and Interior Views of
Montana State University School of Music, Missoula, Mont.
Architects: Fox & Bollas, Missoula
Contractors: Pew Construction Co., Missoula
Acoustical Consultant: Prof. Knudsen, U.C.L.A.

School learns how to be QUIET

Most troublesome enemy of music study and enjoyment . . . is *noise*. Noise that might come from within the very area where music is the subject. Alien sounds originating in corridor and classroom, a cacophony that not only retards concentration and appreciation of harmony, melody, and rhythm . . . but actually distorts and destroys the beauty of music itself.

Low-Cost Answer

Fortunately, Acousti-Celotex Sound Conditioning has brought the economical solution to scores of music schools and colleges. Take, for instance, the beautiful Montana State University School of Music at Missoula. Here, under the supervision and close cooperation of Prof. Knudsen, the construction of the building and the nature of its study-subject dictated these Acousti-Celotex ceiling types: In classrooms, Acousti-Celotex Random Pattern Cane Fiber Tile (screwed to Acousti-Lockboard), a material as attractive as it is easily maintained. In corridors, Acousti-Celotex Random Pattern Tile or Celotone® on Acousti-Line Suspension System. And walls of practice rooms and secondary corridors were treated with especially-suited Celotex Perforated Panel Board backed up with a sound absorbing blanket of Celotex Rock Wool.

Versatility Unlimited

Other unusually satisfactory installations, besides the completely sound-conditioned School of Music, have been made on the Montana State University campus. Here is ample proof that no matter what the project may be . . . whatever the problem of acoustics, building code or design itself—your local Acousti-Celotex distributor stands ready to assist you.

- **He is a member of the world's most experienced acoustical organization with hundreds of thousands of expert installations to its credit.**
- **His professional training and experience embrace acoustical installations of every type, size, and application technique.**
- **He has a complete line of specialized acoustical products to meet every job requirement, and can make recommendations to fill exact architect specifications.**

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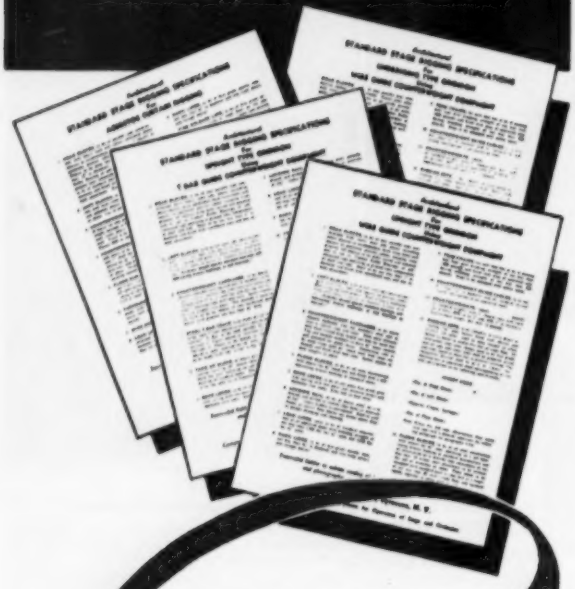
Products for Every Sound Conditioning Problem—The Celotex Corporation, 120 S. La Salle St., Chicago 3, Illinois • In Canada: Dominion Sound Equipments, Ltd., Montreal, Quebec.

Standard Specifications for STAGE CONSTRUCTION



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These standard specifications are the result of more than 76 years of designing and building stages that are completely safe, flexible and easily operated — for present and future requirements.

With these specifications, the architect is assured a stage — in theatre, auditorium or school — which not only meets every contemplated use of the stage and every building code involved, but which will be a definite credit to the profession. Many architects have told us, "These are the kind of specifications that are really valuable to us." Send the coupon or write for your copies.

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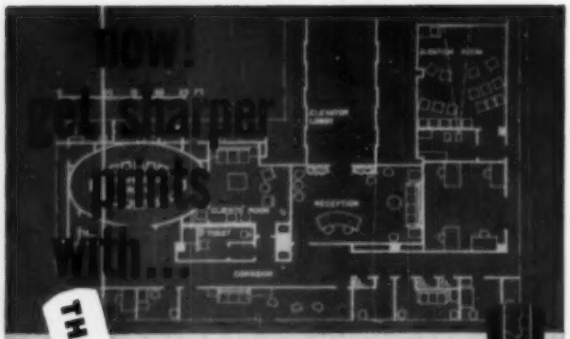

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Carey's Luggage Store, Elmira, N. Y. Alba-Lite panels assure evenly diffused, shadow-free and glare-free illumination throughout. PYREX brand Lenslites focus light on merchandise to enhance buyer interest.

Alba-Lite is available in 3 flat patterns (as shown) in sizes up to 24" x 100", in standard bent shapes or bent to order. Ask for Bulletin LS-43.

How lighting helps lure travelers to this luggage store

Every retailer has the problem of attracting more customers in order to sell more merchandise.

Here's an example of how Corning engineered lighting helped solve that problem for Carey's Luggage Store, Elmira, N. Y.

Carey's needed lighting that would be decorative as well as efficient. That's why Alba-Lite was selected. And you can see how well Alba-Lite fills the assignment.

Smithcraft Area Illumination, utilizing large panels of Alba-Lite, provides 100 f.c. of evenly diffused, glare-free and shadow-free light. Merchandise is presented to customers in its rich, sales appealing best. That's because Alba-Lite transmits the true color of the light source. Fixture efficiency is high—yet panel brightness is low.

And the lighting and decorative advantages Carey's is enjoying today will never diminish. Alba-Lite won't fade or discolor or warp with age or atmosphere. Its smooth surface is easy to clean. It keeps its new look.

Use Lenslites for Emphasis

PYREX brand Lenslites with 150-watt lamps and mounted in Litecraft fixtures focus attention on gift and decorative items. The illumination level on counters beneath the downlights is 200 f.c. and on the display shelves it is 100 f.c. Two center Rambush ceiling downlights draw buyers to items in the showcase below . . . boost profitable impulse sales.

You can achieve equally effective results with Corning engineered lighting for schools, hospitals, offices . . . in just about every lighting project that comes your way. For additional information, write for the new Architects and Engineers Handbook. It's filled with helpful and useful information. Send the coupon today.

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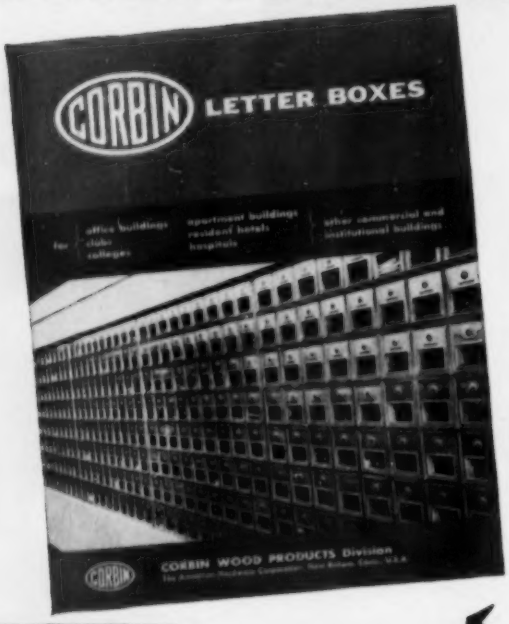
New Data about Letter Boxes



Key type (with card slot) available in 4 sizes

Combination type available in 3 sizes

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The Trade-Wind gives you straight-through axial air flow plus super-powered suction. And it sells at a low, l-o-w price which makes kitchen ventilation a must even in the most economically designed house. And it's so good looking! Styled by a top industrial designer, the **Axial Flow** adds a new distinctiveness to every kitchen.

The optional backdraft damper, shown at left, and wall cap, shown above, are interchangeable and make the Axial Flow the most versatile ventilator on the market.

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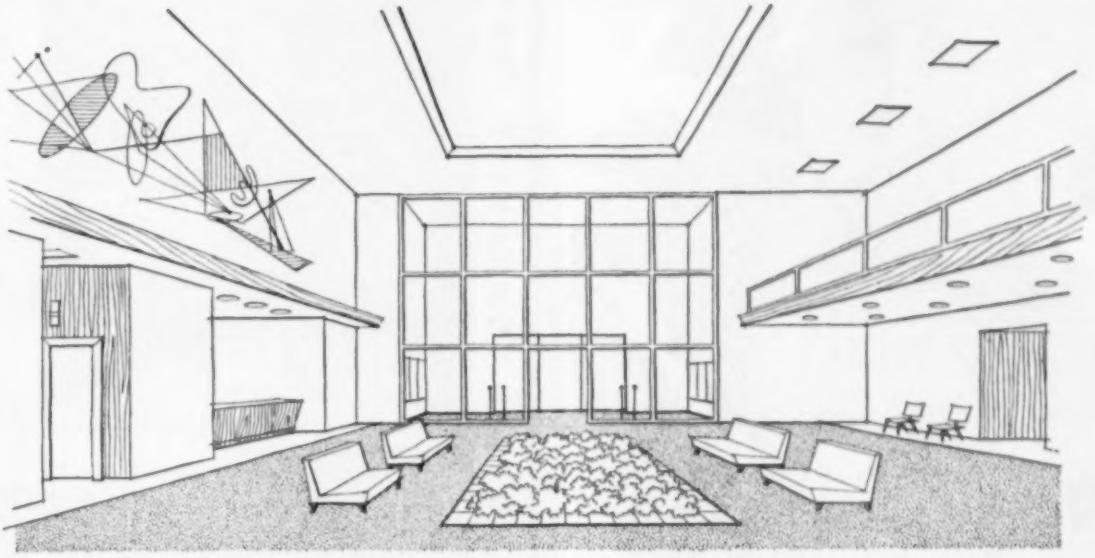
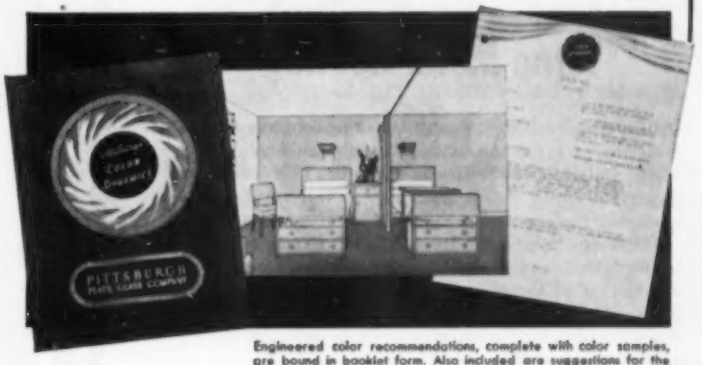


Why not add a comprehensive

Engineered Color Study to your plans?



Engineered color recommendations, complete with color samples, are bound in booklet form. Also included are suggestions for the correct types of coatings for every kind of material and construction.

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● **We'll be glad** to make such a detailed study without cost or obligation to you. Simply call your nearest Pittsburgh Plate Glass Company branch and arrange to have one of our color experts see you at your convenience. Or mail this coupon.

Additional information on COLOR DYNAMICS in Sweet's Architectural File, Section 14/PL

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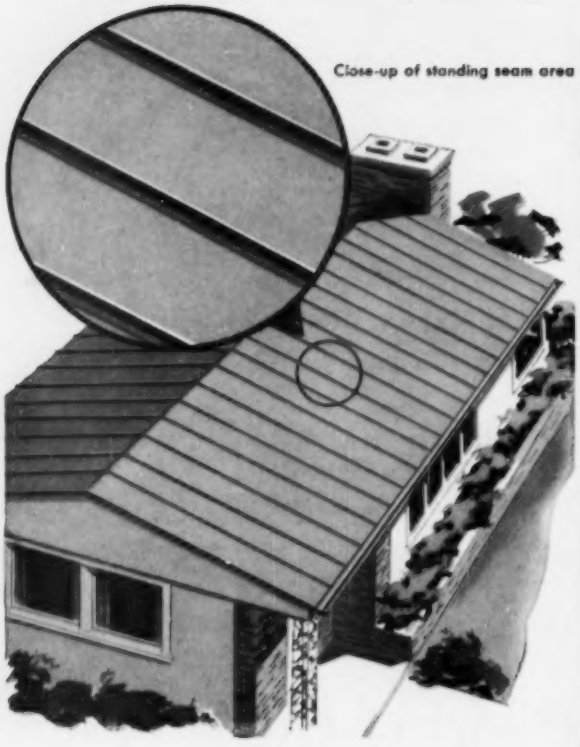

Close-up of standing seam area

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Quality metal roofing doesn't have to present any special problems in expansion-contraction allowances . . . not when you specify Follansbee Seamless Terne Metal. Expansion joints are unnecessary, for Terne has such a negligible coefficient of expansion.

Follansbee Seamless Terne can be cut to any length up to fifty feet, and installed without cross seams. The elimination of these unnecessary cross seams not only insures a more serviceable weatherproof roof, it cuts down on labor and installation costs as well, and there's a considerable saving of solder, too.

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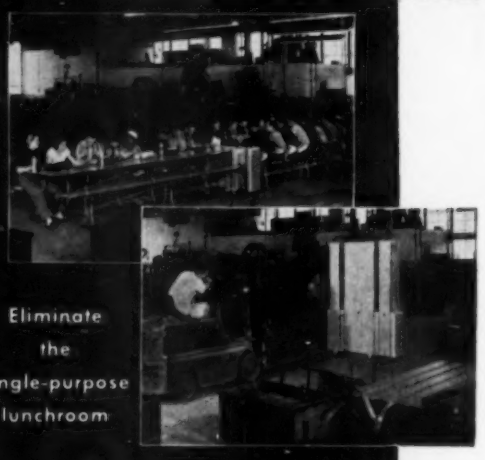

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(PLASTIC REINFORCED)

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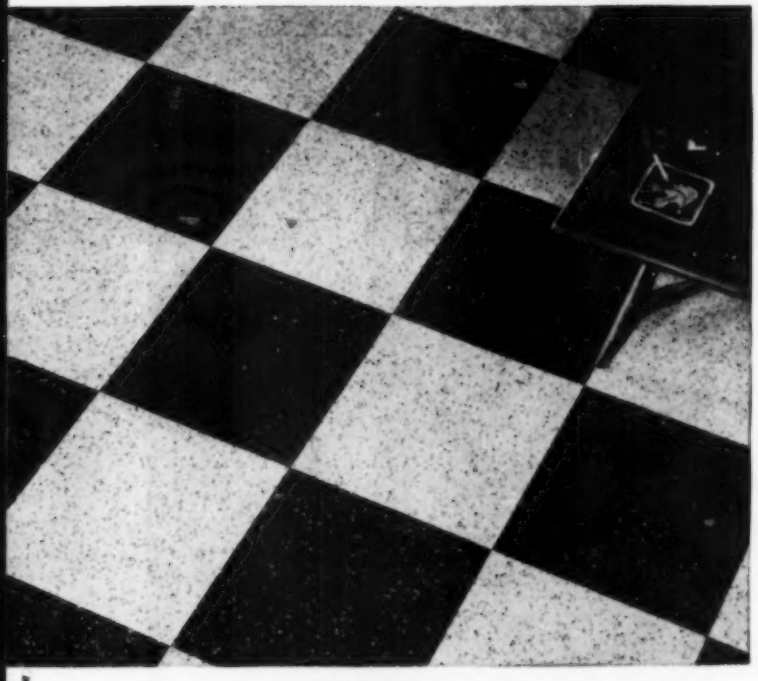

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All are now in "C" color group

Parquetry, simulating hardwood parquet flooring in light oak, maple, walnut and natural gives hardwood floor beauty at asphalt tile economy.

HAKO

Poly-krome

RESILIENT TERRAZZO TYPE TILE

Three popular colors reclassified down to "C" Group

Seven colors reclassified down to "D" group

Multi-colored chips on contrasting fields of color make a gay cheerful floor. A resilient terrazzo type floor at the cost of asphalt tile.

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FOUR *New Pastel* TILES

("E" Group)

Now in "D" Color Group

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Automatic, panic-free, uniform-folding, silent, ¾ safety-fold seat action allows more room for passing and sweeping. Acoustically, the full fabric upholstery compensates for seat vacancies.

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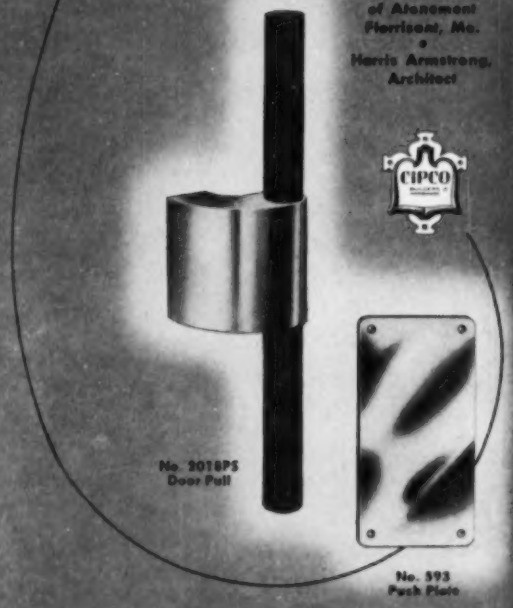

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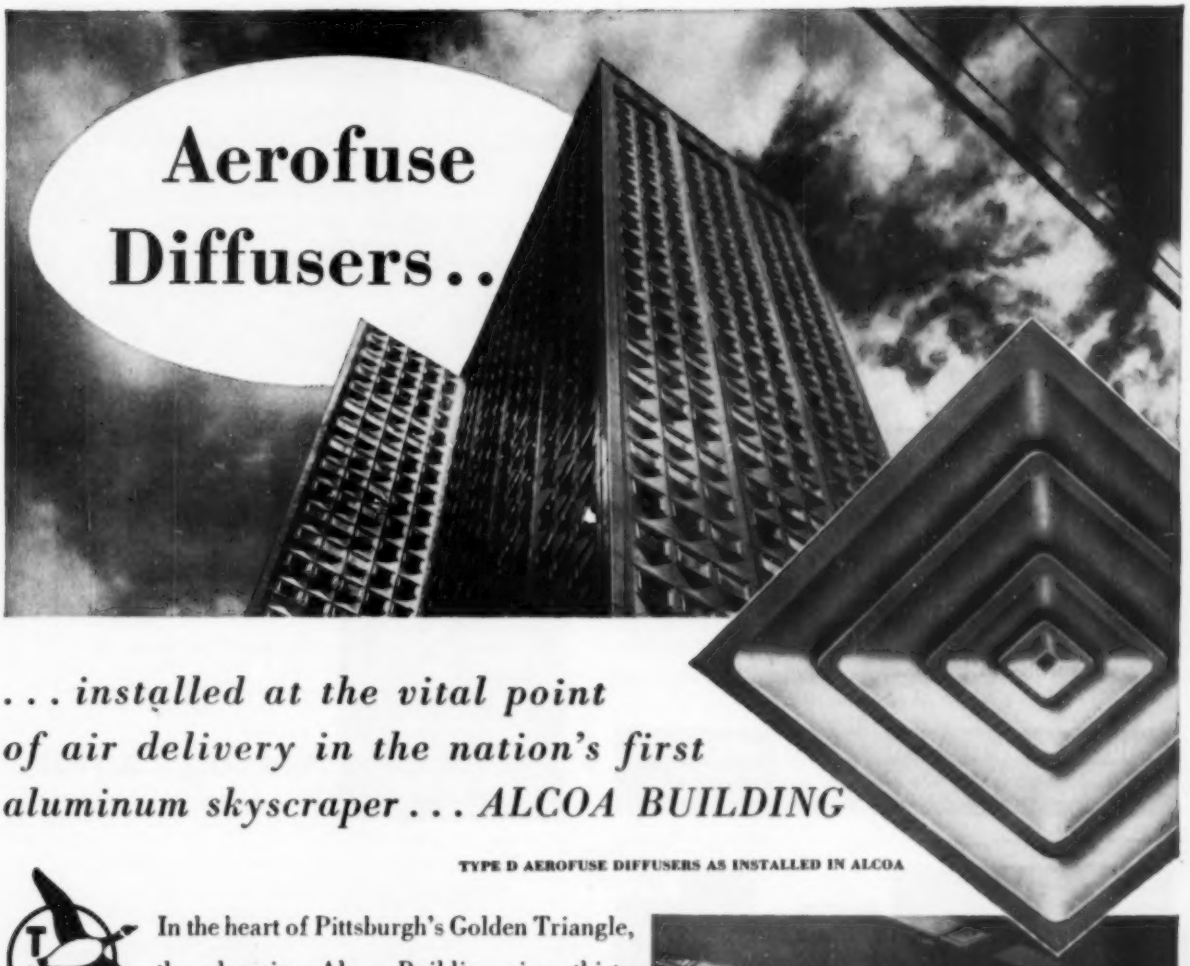

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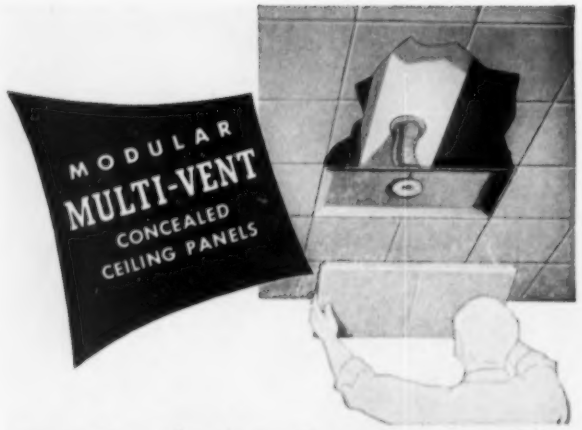

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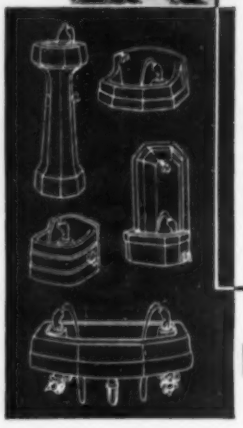

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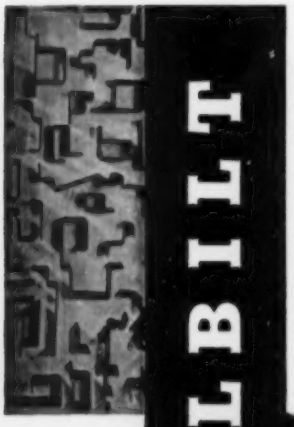

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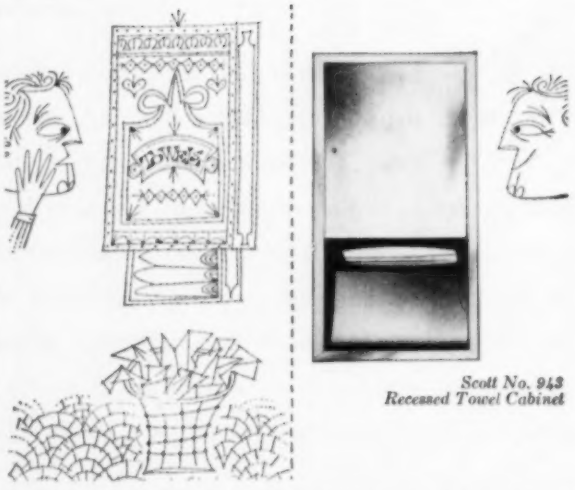

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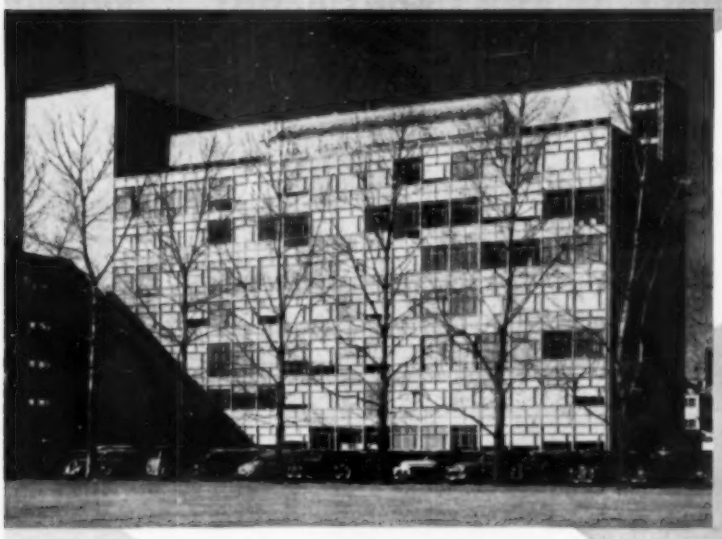

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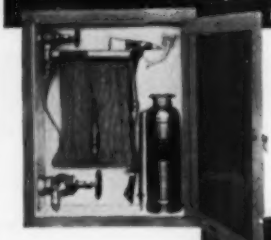

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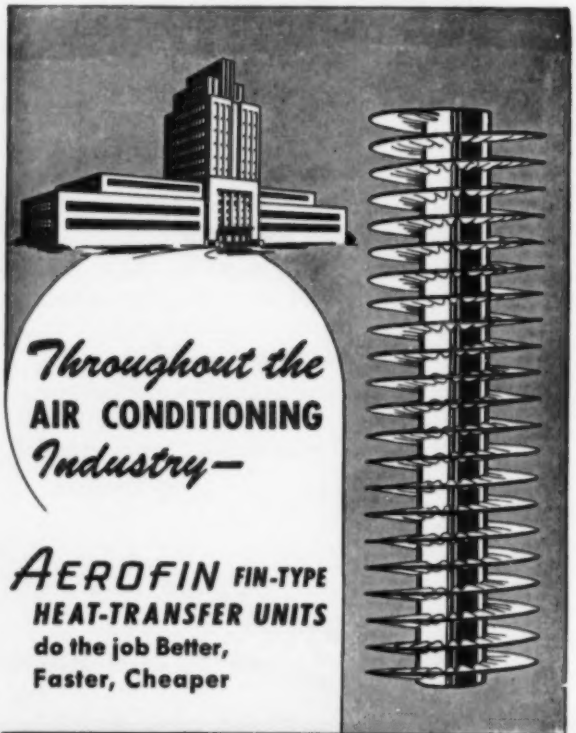

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TOP—Parallel strips of Stainless Steel, 18 inches wide are installed along each side of the windows, adding sparkling beauty to the tall building.

LEFT—The Empire State Building is the world's tallest building, towering 1,472 feet and having 102 floors. Architects were Shreve, Lamb and Harmon, New York. Contractor was Starrett Brothers and Eken, New York.

RIGHT—Stainless Steel is used extensively in the tower of the Empire State Building, now surmounted by a 222-foot television transmitting tower.

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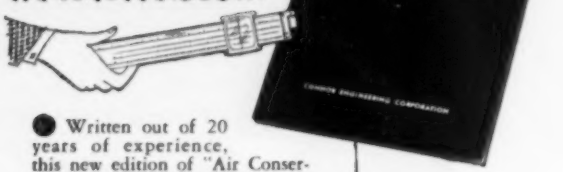

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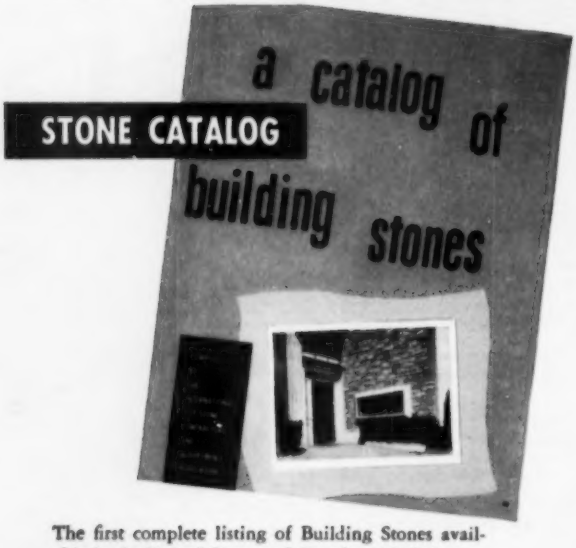

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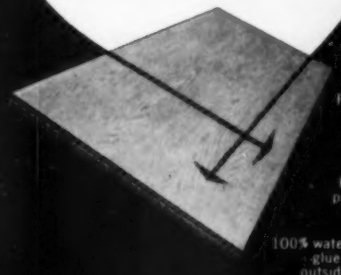

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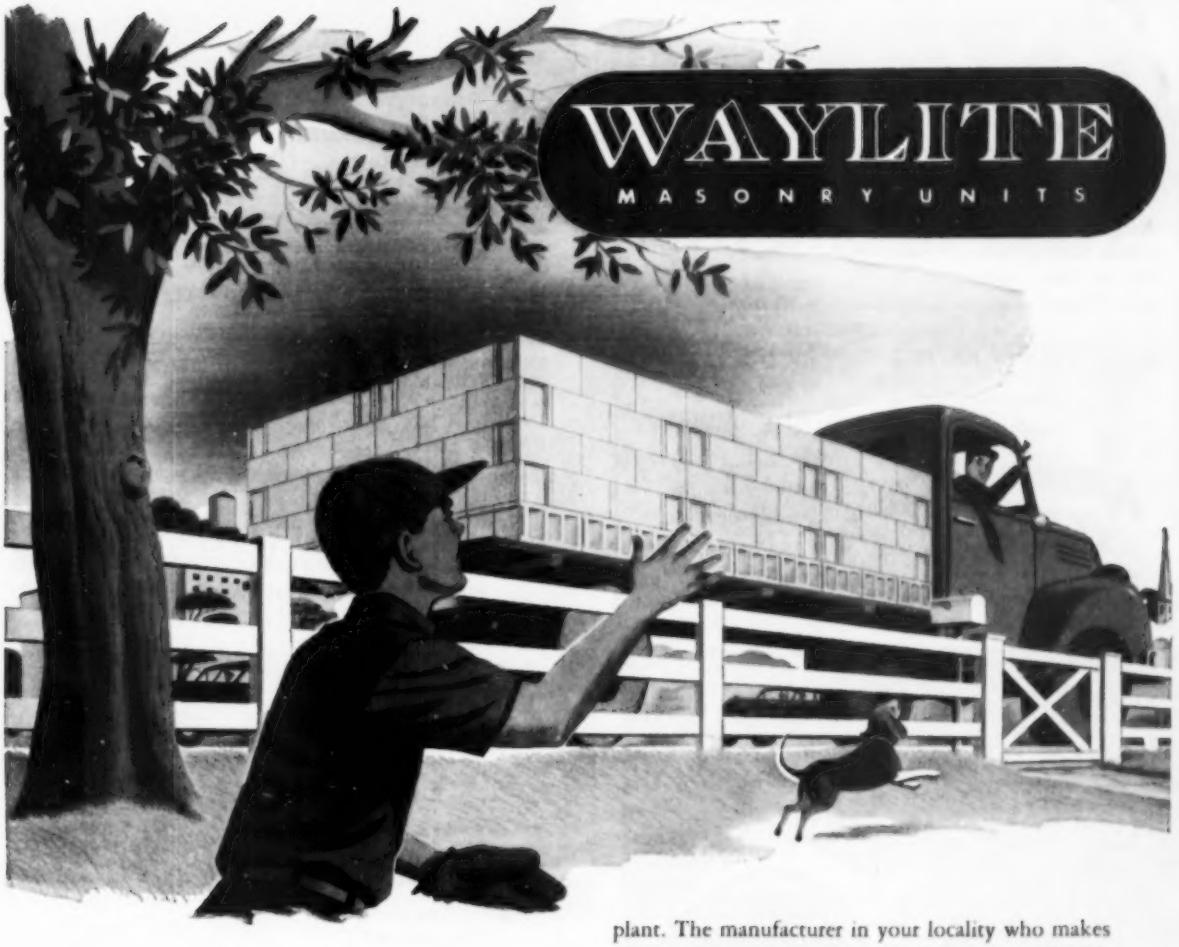

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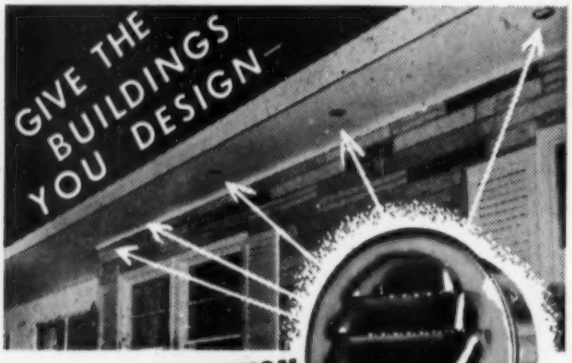

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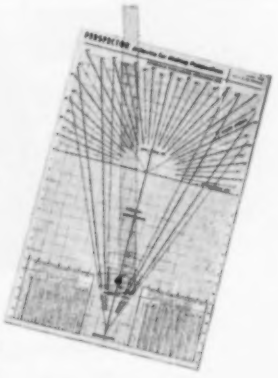

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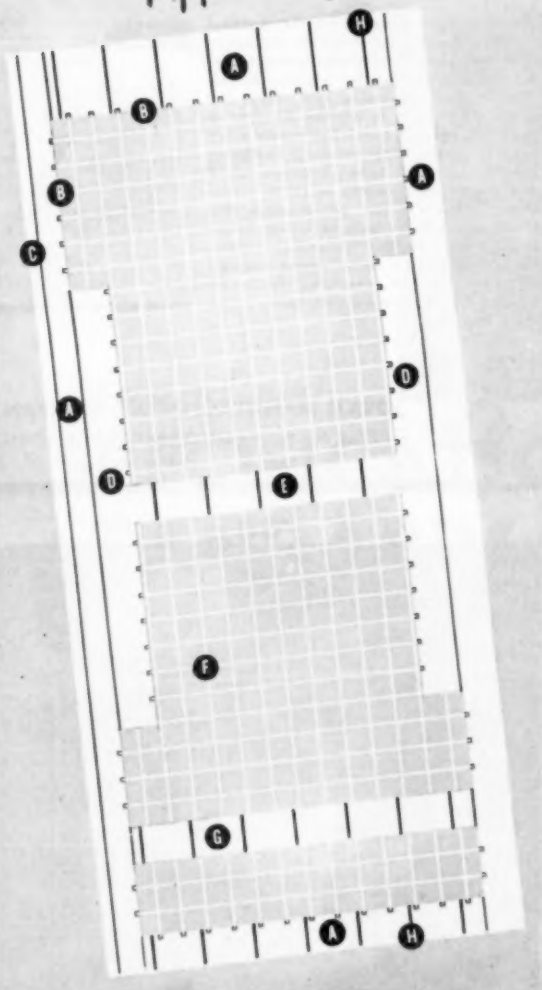

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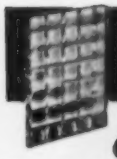

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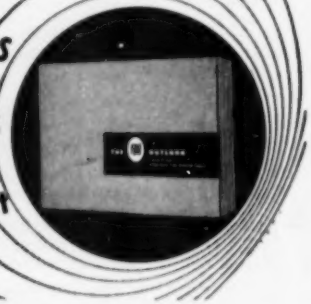

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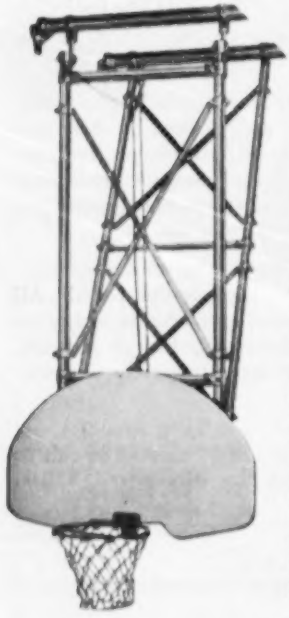

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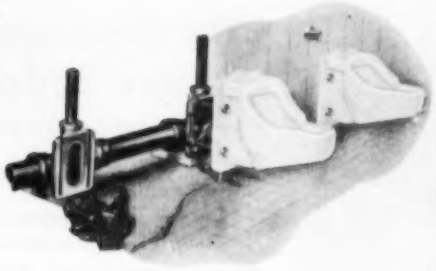

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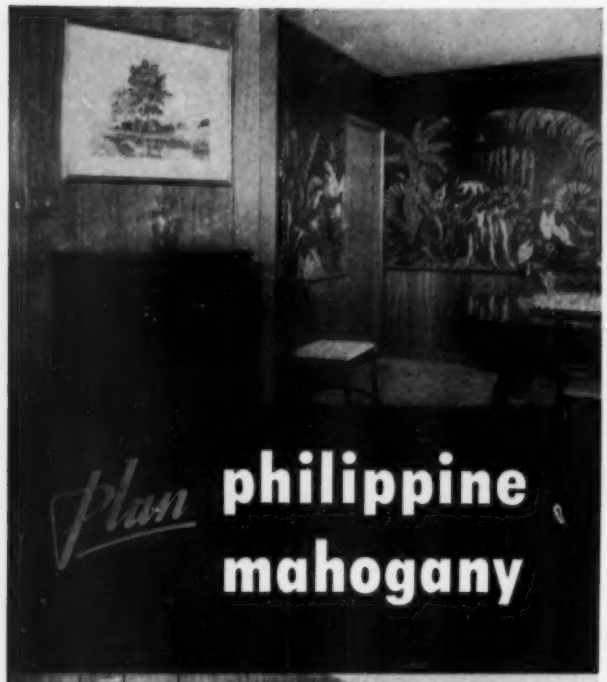

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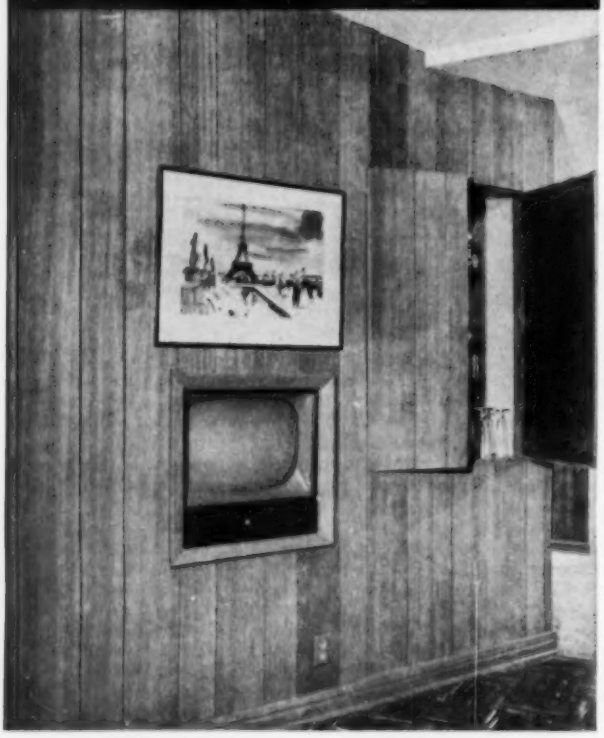

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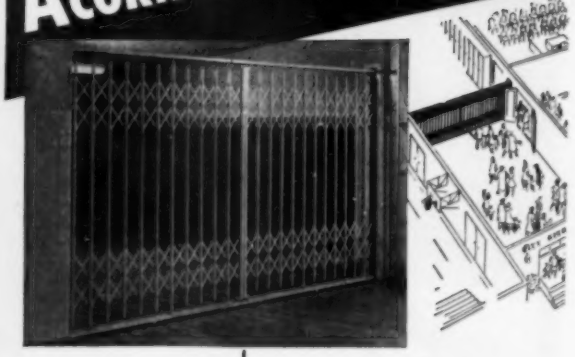

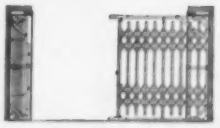

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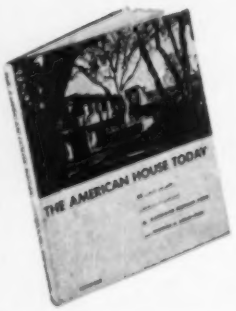

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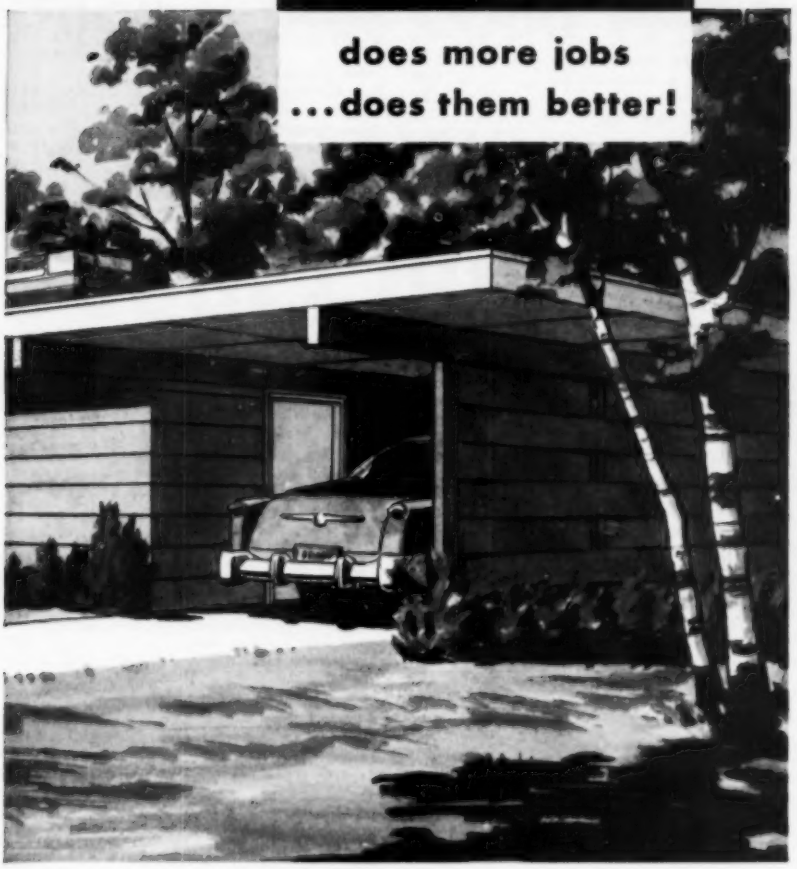

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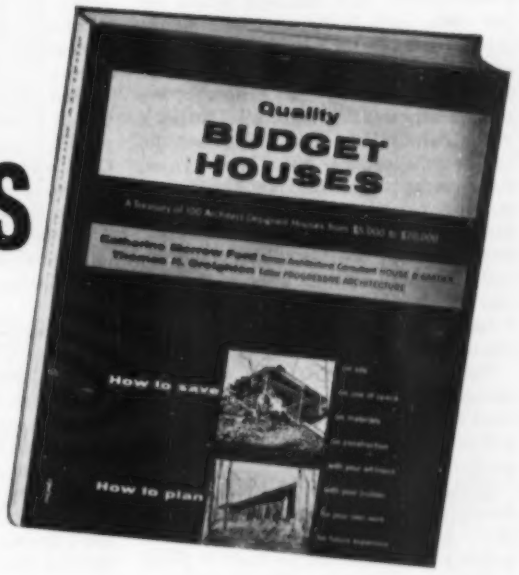

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I remember that when I wrote my first book, back in the days before writing was a career for me, the bright young editor who was assigned to my opus by the publisher said to me one day, "We could really sell this book a lot better if you'd only invent some word for the architecture of the future—you know, some catchy slogan that we could pin a sales campaign on." I wasn't very imaginative in those days, and I didn't invent the word, and the book didn't sell too well. I've been reading some of the current crop of architectural literature, and I realize how shortsighted I was; the young editor was absolutely right.

I've been giving this a lot of serious thought, because goodness knows I don't want to lose out in this race for critical authority just because I have a weak vocabulary.

In the first place, it's obviously time to drop the outworn Modernist v. Traditionalist division. There are categories within each group that are hard to place, and there are overlaps which are confusing. Then I think that the Romanticist v. Functionalist alignment has served its time. It never did mean much and, anyway, it was too easy to understand to justify writing a book about. I have already spoken my piece about the subdividing of design which places one half in the American Way of Life category, and the other half in the Internationalist Bauhaus camp.

Bob Kennedy is more on the track in his book, *The House* (a Reinhold publication, of course). He lists The Traditionalists, The Internationalists, The Empiricists, and then goes on to predict The Directivists. He even has charts and diagrams subdividing these categories into Left Wing Futurists and Right Wing Archaicists. This is more what my young editor friend and mentor had in mind—a good, snappy slogan that we can roll around and toss off at cocktail parties to indicate that we not only know what's coming, but have a word of our own for it. I think Bob's brave attempt is weak in several respects, though. In the first place he continues to use the old shopworn term Traditionalist. Then he falls into the chauvinistic error of recognizing something indefinable called Internationalism. And finally he borrows from our English colleagues on *The Architectural Review* their own proprietary catchwords, The New Empiricism. Only the final projection—Directivism ("a new resolution of Style, Environment, Tradition, and of Form, Function, and Expression in an esthetically directed manner"); really, you couldn't ask for one word to mean more than that, could you?—is his own addition to the thesaurus of architecture.

Well, then, what is a way of classifying all architectural design that is really clear and logical, but that sounds complicated and esoteric? I think I have an answer. Here is Creighton's Classification of Culture, subdivision Architecture. All architecture, past, present, and future, falls into one of the following Style Classifications:

Predeterminism is that branch of architecture in which the result is established from accepted forms before the program is even defined. It is not to be confused with Traditionalism or Electicism (outdated terms!) because many Modern, International, and Contemporary buildings are Predeterminist. The Predeterminism may be established because of an architect's known biases—in which case the client goes to him because of them—or by the client's dogged determination to have a building that looks exactly like the one he has pictured all along in his mind's eye.

If we wanted to, we could subcategorize Predeterminist buildings. There might be a distinction between, say, *Precessive* structures (an *idea* which causes the Predeterminism) and *Sequential* structures (Predeterminism through past association). Now we're really getting hot; let's go on.

Indeterminism is the category of architecture including buildings which result from (a) a firm resolve on the architect's part to "give the client what he wants," and (b) a complete lack of interest on the part of the client as to what he gets. Here would go a New England house in Colorado, designed that way because *House & Garden* happened to publish such a one as the time for detailing approached, as well as a strip-window office building on Park Avenue which came out the way it did because, *at that moment* a strip-windowed building on Fifth Avenue was receiving publicity. Thus the subcategories are obvious—*Introversion* (Indeterminism because of a desire to conform and be anonymous) and *Extroversion* (Indeterminism because of a desire to conform and receive adulation).

Determinism, the third category, is closely akin to previous listings under Functionalism and Constructivism. It is the architectural result of a firm belief that there is only one answer to any given design problem. Determinism can result only from a firm interlocking of architect and client, both with the same Predeterministic philosophy, or from the action of a strong-minded architect (a fountainhead) with a client who is merely the source of funds (a figurehead). Subcategories here could be endless, but I suggest for consideration just two: *Planometric Determinism* (the function of creatures operating in two dimensions is the Determinant); and *Isometric Determinism* (the function of isolated structure, in three, four, or even five dimensions is the Determinant).

Postdeterminism, our last, forward-looking category, is obviously (if it isn't all obvious by now, I'm sorry I ever started the discussion) that group of buildings where a form is derived through playing with toothpicks (how that industry must have picked up!) and a pot of glue, of bending pieces of paper into various folds to see what they will support, of doodles, abstract calculations, and dreams jotted down on the moment of awakening. The form, which is then given a name (a variant of space-frame or stressed-skin usually) is applied to an existing program, rationalized through a series of lectures at one of the leading architectural schools, and published—either as a small brochure (the sloppy way) or as an expanded History of Architecture as Plasmic Form (the scholarly way). Subcategories? Let's at this point, go no further than defining *Aberrant Postdeterminism* (until the last piece is in place no one *really* knows what the form is going to be) and *Cataleptic Postdeterminism* (a sort of muscular rigidity in the form, apparent from the first).

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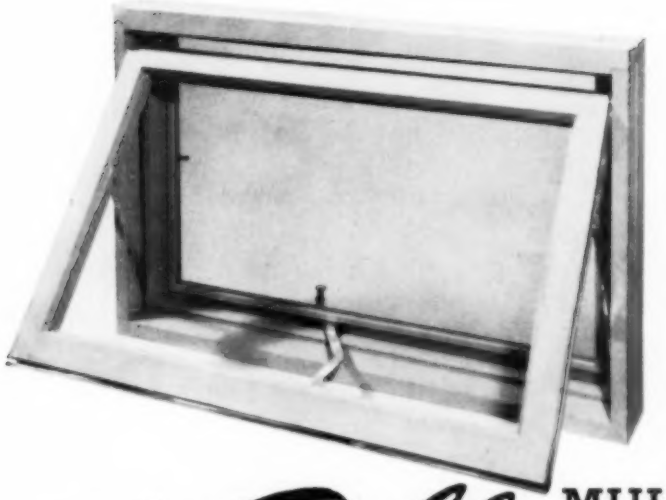
I think it would not be too difficult to reclassify all structures in these new categories. It seems obvious that no previous documentation is correct—I can think of so-called Romantic buildings that were really Predeterminist in concept, and some that were Postdeterminist. Some things that have been considered Determinist, as a functional expression, seem on re-examination, to belong in the Indeterminist camp (purely accidental). And so on. I offer this analysis, free of charge, to the new BRAB committee exploring Documentation.

Thomas H. Creighton



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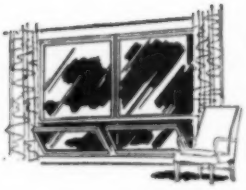

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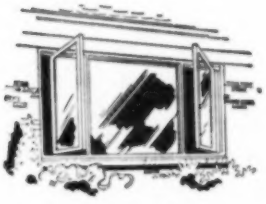

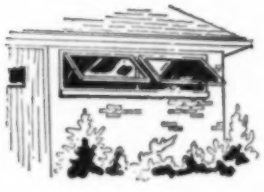

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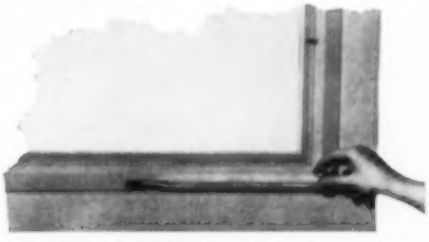

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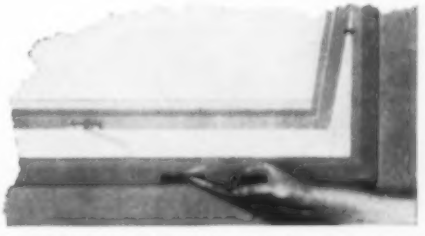

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